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LETTER XXVI.

Paris, 19 *October*, 1807.

Knavery of traders in the *Palais-Royal*—Parisians make better bargains than foreigners—Advice of a Parisian, which the author follows—*Negociants*, generally, respectable men—M. Hottinguer—Occupation of the merchant less reputable in France than in the United States; and why—The effect of governmental restrictions—The character of the American merchants; and the change which it would undergo, were the channels of commerce blocked up—Bonaparte's restrictions on trade ineffectual—Comparative expense of living in London, and in Paris.

MY DEAR FRIEND,

I forgot to tell you, in my last letter, that the multitude of merchants, who carry on their commerce in the *Palais-Royal*, are, with a few exceptions, little better than a set of publick robbers. The history of their trade is the history of fraudulence and knavery in all their worst forms. Sel-

dom do strangers traffick here, without having cause to reproach themselves for the bargains, which they make. It is an invariable practice to demand double the real value of every thing, which they dispose of. This fact I learned by dear-bought experience.

On my arrival here I purchased books and clothing to a considerable amount, and paid, without hesitation, the sum required for them. I conducted in the same manner, that most people do in America. We deem it dishonourable, you know, to solicit a diminution of the price, presuming that the article is offered as low as it can be afforded. I had not been long in Paris, before I discovered, that, in a number of instances, I had been scandalously imposed upon, both as to the quality, and as to the value, of the commodities, which I had procured. It required but a small share of discernment to enable me to perceive, that the Parisian purchaser, who had always lived in a land of knaves and scoundrels, knew far better than I did, how to make advantageous bargains with this race of sharpers.

"*Il faut les marchander,*" said Mon. S. to me, the other day, as I was buying the works of Lacroix, at a price, which I then supposed was very reasonable, but which I afterwards found was double what I ought to have given. This would be disreputable, replied I, in my country. "*C'est bien autrement ici,*" said he, shrugging his shoulders.—"Honesty," he remarked, "is a cardinal virtue, but it is one to which the petty dealers in France are perfect strangers. You must beat down the trader. You must cheapen every thing. Be cautious of offering for any article more than half the sum, which was at first demanded. This is a common practice, and, "added he, *c'est une pratique absolument indispensable, si vous n' êtes riche comme un milord Anglais.*"

By these remarks I profited not a little. Indeed, I have now adopted the Parisian mode of *merchandising*, of cheapening, every thing I purchase, and of the success with which I practise it, you will be able to form an opinion, from two or three examples.

Passing a book stall, a short time since, a large and beautiful map of the French empire, exhibited for sale, caught my eye. I was desirous of making it my own; and stepping up to the stall, demanded the price. "*Douze francs,*" answered the *libraire.* It is too much, said I. "*Mon pardon, Monsieur, c'est fort bon marché.* I cannot let you have it for a single sou less."* Very well, said I, moving along towards another stall, then I shall do without it. "*Mais, Monsieur,*" added he, with increased warmth, and holding up the map between his two hands, "*vous avez besoin de cette carte. Elle est nouvelle, et tres bien faite.* You see it indicates the boundaries of the new departments. I wish very much to oblige you, Monsieur, and am willing to make a sacrifice to do it. *Combien voulez-vous me donner pour cette belle chose?*" Six francs, I replied. "*Eh bien!*" rejoined he, "*prenez-la.*"

In a shop hard by, I inquired the price of a pair of gloves. "They are very cheap," said the "*marchand des gants.*"—They are only five livres." It is more than I can afford to give, observed I. "*Je suis bien faché,*" said he; "but I can assure you there are none cheaper in Paris." I would give two livers for them, I remarked, and turning on my heel, left the shop. I had not proceeded more than ten paces, when a boy came running up to me with the gloves, for which I paid him two livers, and passed on.

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*This conversation, which was entirely in French, is a part of it translated into English for the gratification of those readers, who are unacquainted with the French language.

In this manner commercial concerns are conducted in the *Palais-Royal*; and, it is said, they are conducted in a manner very similar to this, in all parts of the city, and in all parts of the empire. There are, indeed, in Paris, a few of that sort of merchants, who are denominated *negociants*, who maintain as unspotted characters, and who are, it is probable, as strictly upright, as any men in any country.—In this class I ought to include, with a number of others, M. Hottinguer, who formerly resided in America, and had the good fortune to marry an uncommonly beautiful woman, possessed of fine accomplishments, in Providence, Rhode-Island. Though he has accumulated an immense estate; receives and magnificently entertains, perhaps, as much company as any private individual in the capital, yet he is distinguished far more by a simplicity of manners, resembling those of the people of New-England, than by the versatility and loquaciousness, which strongly characterize most of his countrymen.

A large proportion of the mercantile men in France, and especially those of a secondary order, have no valid title to the reputation of equitable dealers. Among all their *wares*, moral honesty is not exhibited. It is an article foreign to their profession, and, as they imagine, an unprofitable one to possess. They are, in truth, a *genus* of iniquitous speculators, comprehending a vast variety of species.

The vocation of the merchant is considered far less reputable here, than it is in the United States, and it is chiefly owing to this single circumstance;—most of those, who are engaged in it, are knaves,—I had almost said,—*from necessity*. Does not the fraudulent, disgraceful mode of carrying on trade in France grow out of the present, and former governmental restrictions on commerce? This is, it seems,

to me, the natural, legitimate, and unavoidable, consequence of such restrictions.

Let us survey, for a moment, the state of our own commerce. The American merchants are, most of them at least, like those of ancient Tyre, "the honourable of the earth." They act on a great scale. They cherish enlarged, and liberal, and correct views. They import the commodities of all countries. Their vessels plough their way unchecked into all regions of the globe, and return laden with the superfluous productions of every clime. These are distributed from the warehouses of the importers among wholesale and retail merchants, in the city, and throughout the country. They proceed from the seaports in a thousand different directions. The wheels of commerce all move easily, briskly, and with regularity. Most of the individuals belonging to each class of merchants, from the opulent importer, down to the most petty retailer, reap a handsome compensation for their industry and enterprize. Honesty is the general characteristick of them all. They have indeed, few temptations to be dishonest, while they are suffered to manage their own affairs, in their own way, without experiencing any embarrassing, or burdensome, restraints, imposed on them by the government.

But suppose the natural channels of commerce were blocked up. Suppose we were forbidden to make importations of foreign articles. What would be the consequence? Would importations be discontinued? By no means. The river, whose current is obstructed, gradually, rises against the opposing barrier, till the accumulated force of the water overpowers the obstacle; or till the stream overflows its banks, breaks its way through gardens and fields, sweeps off every thing which opposes its progress, and works for itself a new channel, from which, after a little pe-

riod, it is difficult, if not impossible, to cause it to resume its original bed.

So it is with trade. If it be prevented by prohibitions from proceeding in its ordinary channel, it will, after being a short time obstructed, assume a new course. The laws will be violated. Foreign commodities will be introduced. Custom-house officers, who now disdain the proffer of a bribe, will be corrupted. Bribery will become common and reputable, and when once rendered common, no exertions of the government, no exhortations of the moralist, no entreaties of the christian, no length of time will be able to eradicate the evil.

By whom will commerce then be carried on? By those highly respectable men, who are now engaged in it? By those, who cannot act dishonorably? By those who are accustomed invariably to follow the rules of eternal rectitude? No: a part of those men will, by the sudden stagnation of business, be bankrupted and ruined; and the remainder will undoubtedly turn their attention to other pursuits, in which they can procure a livelihood, without counteracting the dictates of their own consciencies, or the authority of heaven. Those, who grasp at any means, which lie within their reach for the acquirement of property, however iniquitous; those, whose virtue is too feeble to withstand the attack of powerful temptation, will then be our only merchants. Thus, it appears to me, the necessary tendency of governmental restrictions on commerce, is to produce a disastrous change in the community; to corrupt; or to remove from their lucrative and useful occupations, a number of valuable men; and to place in their room a demoralizing set of peculators and scoundrels.

God grant, that this picture, which is drawn for the em-

pire of France, may never become appropriate to our own happy country.*

Bonaparte, you well know, has strictly interdicted the importation of all articles, which spring from British soil, or from the British manufactories. This prohibitory measure, though it has embarrassed and empoverished multitudes of merchants and bankers in France; though it has generated an incalculable amount of distress in all the commercial towns, does, by no means, wholly prevent the introduction of British merchandise. It finds its way into the country by a hundred different channels. Many of the officers of the government are deeply interested in this contraband commerce. They suffer the owners of vessels to traffick with the English, on condition, that *they* shall be allowed to receive a certain proportion of the avails of the trade. One vessel, I am informed on authority, which I cannot discredit, sails regularly from Bordeaux for England once a fortnight, loaded with wheat and wines. Others are dispatched occasionally.

Never was a more inviting bait holden out to be caught at by greedy speculators. They at once seize it. As soon as a cargo of sugar, or cotton, or coffee, arrives, it is immediately bought up by them, and kept, till nearly all the former stock in the market is exhausted, and then sold at enormous prices. In consequence of the prevalence of this species of monopoly, loaf sugar is now retailing here at six livres a pound, and coffee proportionably high. An American gentleman, whom I could name, told me, a few days since, that by the purchase and sale of tobacco alone, he

* When the above letter was composed, the author had no suspicion, that a great proportion of the remarks, which it comprises, would, in the narrow period of seven years, be verified in the United States of America.

had cleared, in the short space of six weeks, 130,000 livres.

You request of me, my dear friend, an account of the comparative expense of living in the English and French capitals. On this head, I apprehend, I shall not be able to gratify your expectation, in consequence of my want of sufficient information. I shall give you little more than what has resulted from my own experience.

Among the inhabitants, and residents, of all large cities, there is an infinite diversity of tastes and inclinations; and an infinite diversity of pecuniary means of gratifying those tastes and inclinations. There are individuals in London, and in Paris, also, who live for ten or fifteen shillings a week; and others, who expend from fifty to a hundred guineas in the same period. The former lodge in garrets, and eat in cellars and soup houses. The latter occupy splendid apartments, dash about in elegant carriages, frequent all the publick places, glitter in balls and masquerades, and eat at the costliest hotels. Many of this latter class are incessantly running the same round of fashionable pleasures, which may, indeed, *employ*, but surely cannot impart complete satisfaction to all the desires of their immortal minds.—They unquestionably sometimes feel, and feel, forcibly, too, the truth of Cowper's energetick lines—

> It is the constant revolution, stale,
> And tasteless, of the same repeated joys,
> That palls and satiates and makes languid life
> A pedlar's pack, that bows the bearer down.

I am in no danger of running into either of these extremes. From the one I shall be withheld by pride, if by nothing better; and from the other by poverty. I shall give you an idea of what it costs an individual to maintain himself, who adopts the "*medium iter*"—the middle course—between unrestrained prodigality, and pinching

penury.

I have taken up my abode, as you are already informed, in the *Faubourg St. Germain, Rue de Sevres,* where the rent of apartments is not more than half as high, as it is in the vicinity of the *Palais-Royal.* I pay nearly as follows.

		Livres.
For two decent furnished chambers, and board per month,		130.
Wood, about		40.
To the house servant,	These gentry it is customary	6.
To the cook,	to keep in pay, whether they	6.
To the porter,	do any thing for you or not.	8.
Washing		14.
Total expense for one month		204.
This is exclusive of coach hire, and numerous other trifling, but necessary, expenses, for which I ought to add, at least,		40.
Making in all		244.
Converted into dollars and cents, it would be, per month,		$44,73.
Or, per week,		$11,18.

In London I had lodgings, during one month, in Hatton Garden, which is a tolerably central part of the city, but not so fashionable as the West End. I will transcribe the bill, which was handed me, at the termination of this period. I must here remark, that lodgers, in London, have furnished rooms, breakfast and take tea, at home; which meals are provided by the lady of the house, at a price agreed on. They dine where it suits them best, usually at a hotel, or an eating house.

THE BILL.

	L.	S.	D.
For one furnished chamber and a small bedroom, per month	4.	0.	0.
Breakfast, consisting of tea and dry toast,	1.	8.	0.
Tea	1.	2.	0.
Washing		10.	6.
Coal		5.	0.
Candles		3.	0.
To the chambermaid, shoeboy, &c.		9.	4.
Dinners	3.	10.	0.
Total, for one month, in sterling money,	L. 11.	7.	10.
Following the American mode of computation this bill would amount to	$50.63.		
Or nearly, per week, to	12.66.		

The expense, attending travelling in England, is far greater than in France, but the difference in the price of living in London, and Paris, I have not found to be very material. Perhaps this is owing to the circumstance of my having been in London, in the most sultry season of the year, when a vast proportion of the wealthiest part of the population were resident at their country seats, or at the watering places. I am, indeed, informed, that the city is immensely more thronged with people in the winter, than at any other time, and that the demand for lodgings is sometimes extremely exorbitant.

REVIEW.

An introduction to Algebra, being the First Part of a Course of Mathematicks, adapted to the method of instruction in the American Colleges. By JEREMIAH DAY, Professor of Math. and Nat. Phil. in Yale College. New-Haven; Howe & Deforest, 1814. 8 vo. pp. 296.

IT has long been a subject of complaint, that we had no system of Mathematicks adapted to the plan of education in our country, and, especially, to the method, universally adopted in our Colleges. This may appear a very singular fact, when so many valuable treatises upon the Mathematicks have been published in Great Britain, and might have been obtained with ease in the United States. But the difference of the methods of instruction in the two countries, and the particular objects of the authors, present satisfactory reasons for the complaints, which have been made.

It is more singular, perhaps, that American mathematicians have not produced the desired system. To those who may be disposed to attribute this to a destitution of mathematical talents and knowledge, we shall offer no proof of the contrary, but leave them in the undisturbed enjoyment of the profundity of their judgment and discernment. Neither shall we occupy time in accounting for a fact, the causes of which are very obvious. The system, compiled by the late President, then Professor, Webber, is much superior to any before used. It is the first and only work of our countrymen, it is believed, which was designed as a *text book* for the Colleges, before the present. But against this compilation substantial objections were made by instructors in general, and a "course of Mathematics, adapted to the method of instruction" in our Colleges, still re-

mained a disideratum, It was, therefore, with great pleasure, that we heard such a work was about to be published by Professor Day. The acknowledged talents, industry and judgment, of this gentleman, raised high our expectations.

The system is to be contained in seven Parts: 1. Algebra; 2. Plane Trigonometry and Logarithms; 3. Mensuration of Superficies and Solids; 4. Navigation and Surveying; 5. Conic Sections; 6. Spherical Geometry and Trigonometry; and, 7. Fluxions. To the First Part, which has been some time before the publick, our present remarks will be confined.

In the preface to the first part, which may also be considered a preface, in reality, to the whole, and in the introductory observations, Professor Day has, in a very neat and perspicuous manner, stated the characteristicks of the system of mathematicks, which would be calculated for our Colleges, and, the particular advantages to be derived from the study. These we shall present to our readers, as far as may be, in the language of the author.—Very much novelty is not indeed to be expected upon these points, but their importance renders them worthy of more deliberate consideration, than has always been bestowed upon them. We shall then be far better qualified to judge of the merits of the work before us.

The system of Mathematicks for our Colleges ought to possess the following characteristicks.

1. It should contain more than the first and general principles of the science. The students "are expected of *themselves* to acquire the principles of the science to which they are attending; receiving, however, from their instructor, any additional assistance which may be found necessary. An elementary work for such a purpose, ought,

evidently, to contain the explanations which are requisite, to bring the subjects treated of within the comprehension of the body of the class." A system, which is defective in this particular, will leave a large proportion of every class in perplexity and ignorance, unless greater attention be paid to them, than it is possible for one teacher to give to several in the time allotted for the study. Several more, who will be able to grope along this dark path, will not comprehend many important points. By the one, the object is but half effected; by the other it is completely lost.

But the parts of the system may be made too full, and the principles be applied to too many particulars, or carried to too great an extent. In this case, the student would be burdened with a needless expense;—for, the time spent in acquiring a liberal education, would not permit him to study the whole. Besides, he is preparing for active life; and, the great advantages to be derived from the mathematicks, do not require such extensive knowledge.

2. The system should be distinguished by perspicuity. The definitions should be distinct. The demonstrations should be conducted in a regular manner, and, until the student has become habituated to the reasoning, no point should be omitted, which would not be obvious to the generality of minds. All those observations, which would explain and illustrate, should be freely made. If it be intended that a student should understand the principles, and *receive* permanent *benefit* from studying them, the work must be full and explicit. The *advantages* arising from the study of the mathematicks, are *twofold*. The *one* consists in the knowledge itself, and in the application of it to the business of life. This may be called the *direct* advantage.—There are a variety of subjects, with which mathematical principles have apparently very little connection, which

cannot however, be thoroughly understood without them. Indeed, the "applications of the mathematicks in the common concerns of business, in the useful arts, and in the various branches of physical science, are almost innumerable." The knowledge, which is thus derived from the mathematicks, is highly interesting and important. The *direct* advantages are, consequently, very great. But the *indirect* advantages deserve a still higher estimation. These consist in the influence of mathematicks upon the mind. Here the interest of every student is immediately concerned.—"The main design should be to call into exercise, to discipline, and to invigorate the powers of the mind. It is the *logic* of the mathematicks, which constitutes their principal value, as a part of the course of collegiate instruction. The time and attention devoted to them, is for the purpose of forming *sound reasoners*, rather than expert mathematicians. To accomplish this object, it is necessary, that the principles be clearly explained and demonstrated, and that the several parts be arranged in such a manner as to show the dependence of one upon another. No other subject affords a better opportunity for exemplifying the rules of correct thinking." The study of the mathematicks is calculated to form the mind "to habits of fixed attention; of sagacity, in detecting sophistry; of caution in the admission of proof; of dexterity in the arrangement of arguments; and of skill, in making all the parts of a long continued process tend to a result, in which the truth is clearly and firmly established."

3. The principles should in no case be assumed as true, or, stated to be true, while the demonstrations are referred to in other authors, and, very rarely should the student be directed to a future, and more difficult, part of the course for the demonstrations. The first two particulars are per-

fectly absurd in a system, designed for the improvement of the mind. The student may as well learn to repeat the principles in an unknown tongue. The last particular must sometimes be permitted. But the instances should be few as possible. He ought not, for example, to be directed to Fluxions for proof of those principles, which may as well be demonstrated by a geometrical, or algebraic, method.

4. The system should contain all those subjects, which have generally been considered necessary in a course of liberal education. As Arithmetick is supposed to have been previously studied, and Geometry is contained in the Elements of Euclid, the course proposed by Professor Day will be generally considered complete. Some few would wish to find also in such a system the Elements of Perspective. There are several weighty reasons for the admission of this science to a place with the others. We will, at least present the subject for the consideration of the author.

These are the principal things, which should characterize the system of mathematicks designed for our Colleges. In addition to the above, it may be remarked, that particular respect should be paid to the age and acquisitions of the students. As Algebra is to be studied principally in the first, or early in the second year of the collegiate course, we cordially subscribe to the following observations. "Algebra requires to be treated in a more plain and diffuse manner, than some other parts of the mathematicks; because this is to be attended to *early* in the course, while the mind of the learner has not been habituated to a mode of thinking so abstract, as that which will now become necessary. He has also a *new language* to learn, at the same time he is settling the *principles* upon which his future inquiries are to be conducted." Adepts in Algebra should

remember these remarks, while they peruse this work.—They will silence their objections to what may appear too great diffuseness.

We are now prepared to estimate the merits of the work before us. There can be no dispute that the "Introduction to Algebra," possesses all the characteristicks which properly belong to it. High as were our expectations, they have not been disappointed in the perusal of the Part already published. The principles are very perspicuously stated—the remarks and illustrations always pertinent and important—the arrangement excellent.

Professor Day excels any author, we have seen, in explaining those parts which are generally difficult to students, in a most luminous manner, and with as much brevity as the object will admit. For the general execution, he deserves the warmest acknowledgments of those, who are to teach mathematicks to youth, and, especially, to classes in College. Though the *first* Part is not, and *pretends* not, to be a complete treatise of Algebra, but few will desire it should contain more. The merits of the execution are very great, though they are very modestly disclaimed by the author. He observes, that "the proper field for the display of mathamatical *genius*, is in the region of invention. But what is requisite in an elementary work, is to collect, arrange, and illustrate, materials already provided." Though the task be considered humble, he, who *executes it well*, has far greater claims to praise, than many of those who have exhibited proofs of astonishing powers of mathematical investigation.

It will be impossible fully to appreciate the merits of the work without a perusal of the whole, but it is proper that a few extracts should be given. Besides appropriate divisions into *Sections*, the work is divided into *Articles*,

and numbered in the usual manner: a very convenient mode of reference.

"ART. 1. Mathematics is the science of quantity. Any thing which can be *increased* or *diminished*, or which is capable of being *measured*, is called *quantity*."

3. "Algebra is a method of computing principally by *letters*. Fluxions may be considered as belonging to the higher branches of algebra."

4. "Geometry is that part of the mathematics, which treats of *magnitude*. By magnitude, in the appropriate sense of the term, is meant that species of quantity, which is *extended*." In this part of the work, a variety of definitions and remarks are given, which are very important for the student, and which he will not readily find any where else.

Negative quantities have generally been treated by mathematicians in such a manner as very much to perplex young students, or to leave them in a state of ignorance. In this work the subject is admirably handled; future ignorance must be *wilful*. A clear apprehension of the nature of negative quantities lies at the foundation of algebraic knowledge.

ARTS. 55, 56, & 60. "A *negative quantity* is one which is required to be *subtracted*. The terms positive and negative, as used in the mathematics, are merely *relative*.—When a quantity continually decreasing, is reduced to nothing, it is sometimes said to become afterwards *less than nothing*. But this is an exceptionable mode of speaking. No quantity can be *really* less than nothing. It may be diminished, till it vanishes, and give place to an *opposite* quantity." The illustrations by *gain* and *loss*, and the like, will be very advantageous to the young mind. Multiplication and division by *negative* quantities, in which alone

there is any difficulty in understanding the processes, are treated in the same easy and perspicuous manner.

The subject of *powers* and *roots*, and particularly of *radical quantities* which have perplexed many a student, is managed in the 8th and 9th Sections in a very satisfactory manner. The student will easily obtain the necessary information upon this very important, and, in some respects, *troublesome*, part of Algebra.

The Sections upon *ratio* and *proportion*, and *variation*, are conducted in the same skilful manner, but to many will appear too diffuse. But it is certainly far better to err on this side upon subjects of such general application in the mathematics, and upon which students are so much exposed to indistinctness in their conceptions, and confusion in their trains of reasoning. This is generally to be attributed to ignorance of the *transformations* which may be made of a *proportion*, "which will not affect the equality of the ratios." For the benefit of the student, we were, therefore, highly gratified to see the several transformations placed clearly and fully before him.

The Section upon *infinites* and *infinitesimals*, is admirable. The reason of the confusion of thought upon this subject is clearly stated, and the only intelligible definition is given. 447. "A mathematical quantity is said to be infinite, when it is supposed to be increased beyond any determinate limits. By determinate limits are meant such as can be distinctly stated." 448. In the mathematical sense of the term, there is no absurdity in supposing *one infinite greater than another*." 449. "An *infinite number of terms* must not be mistaken for an infinite quantity." In the *metaphysical* sense of *infinite*, it would be inconsistent with the definition of *quantity*.

To the methods, which are given for the formation of in-

finite series, it might not have enlarged the work too much, perhaps, to have added that by *indeterminate coefficients*, which has such general application in the higher branches of the mathematics. This would have presented an easy method for the demonstration of the celebrated *binomial theorem*, and for the formation of *logarithms*. The demonstration of that theorem by *induction* is so satisfactory, that most instructors will, perhaps, desire nothing further for the student. That, which satisfied Newton, may well satisfy others. But many, it is believed, will desire to find in the work some of the algebraic processes for the formation of logarithms, especially as these numbers are to be so much used before the study of *Fluxions*. It is probable that more students will thoroughly understand the *algebraic* than the *fluxionary* method. If, however, this be not considered a defect in the "Introduction to Algebra," we know of but *one* belonging to it. In some of the Sections a few more examples, which are not *wrought*, will be desired for the exercise of the student. We think it important that more should be given in a future edition.

Upon the whole, we congratulate the learned author upon the success, which has attended this *peculiar* attempt. And we cannot too highly recommend the work to teachers of Algebra generally, and particularly, for adoption into our Academies and higher schools, as well as into our Colleges. The work is, indeed, larger and more expensive than those which have generally been used. But all those, who adopt it, will save time, and expense, and trouble.

We will take the liberty to add one remark to the above observations, which were furnished by a worthy correspondent to whom we are indebted for several other valuable articles. It concerns, chiefly, the *printing* department.—The "Introduction to Algebra" does not, in our estimation, appear before the publick in so elegant, or so neat, a *dress*, as

it merits. In all the copies, which we have examined, and the number is not inconsiderable, we have found several pages, or rather parts of pages, which were so blurred—so indistinctly printed,—as to be scarcely legible. Whether this imperfection attaches itself to *all* the impressions of the work, or not, we are unable to decide. The disadvantages resulting from the very bad typography of any book, and, especially, of a book, which is destined to be studied by those, who were, before, totally unacquainted with the science of which it treats, are inculcable. But the types, we have been informed, were perfectly new. If so, they do, in our judgment, very little credit to the mechanical genius of the state in which they were fabricated. They certainly were very defective, or else those, who used them, were extremely ignorant of their profession, or culpably inattentive to their business.

Improvements in the arts ought to keep pace with improvements in the sciences. Professor Day's Treatise on Algebra has been pronounced, by an adequate judge, to be better calculated to answer the object for which it was designed, than any work of the kind, which has ever been published on *either* side of the Atlantick. This opinion, we understand, has been advanced, by a *foreigner*—a gentleman, who now stands in the first rank of mathematicians, of whom our country can boast. If Connecticut has had the honour to give birth and education to the author of this work, it surely ought to deserve the honour of being able to send it into the world in a dress, which will better accord with the intrinsick value of the production. Greater attention, we trust, will be paid to the other *Parts* of Professor Day's "Course of Mathematics." We have noticed several trivial mistakes, in the "Introduction to Algebra," which are evidently typographical, and which the author will, in another edition, undoubtedly, correct.

A Concise Description of a Journey from Middlebury to Montreal, with some account of that city, in a Letter to a distant Friend.

Montreal, 9th September, 1815.

My Dear Sir,

You ask of me "a sketch of my tour from Middlebury to Montreal, with some account of that Canadian city."—The task is easy. I will not decline it. But, hold! perhaps you anticipate too much from me? The journey was a hasty one. No preparation for writing was made. No history was consulted. No ancient documents were examined. Materials enough were obtained, it is true, for a short letter. But perhaps they are full of errour. Well; be it so. They are certainly the best, which came within my reach. Besides, I do not engage to give you a faultless description. But I will cheerfully engage to tell you not a single *falshood*, knowing it to be such. In short, I shall draw my picture from the impression made on my own mind, by a superficial view of the objects, that have met my eye, and from such verbal intelligence as could be procured in a very limited space of time. Now I have told you my *means;* my *manner;* and *what* you are to expect.

I left Middlebury, 29 Aug. 1815, in the stage, in company with my dear F. and commenced a trip to this, his majesty George the Third's good city of Montreal. We passed through New-Haven and Waltham to Vergennes, the only city in Vermont. Between these two places, which are distant eleven miles, there is a turnpike road.

Does Vergennes contain any thing worthy of notice? Yes; an extensive and valuable establishment for the manufacture of iron of different descriptions. A number of excellent situations for mills, many of which are occupied.

The first object, that demands your notice, as you come

in from the south, is the court-house. It stands on a hill. Its base is above the tops of the other houses. At a distance, it looks like a citadel.—On the opposite side of Otter Creek from the turnpike, you observe a large white house. It is the seat of Maj. General Strong, who manifested such bravery in the late affair at Plattsburgh.

From Vergennes we proceeded through Ferrisburgh, the residence of an immense number of broad-rimed hats and long-waisted coats.

Next comes Charlotte;—one of the finest townships the foot of man ever trod,—naturally one of the most exuberant soils the husbandman ever tilled. The meeting house, a new, large, neglected, deserted, edifice, has run away from the population, and in its fright, struggling to get round a hill, to make off with itself to Canada, where most runaways resort, has lodged in a very unsightly situation. It ought to have been placed half, or three quarters, of a mile southwest from the spot, which it now occupies. A little before you arrive at this forsaken sanctuary, you are cheered with a most delightful view of lake Champlain.

The farms are large, well cultivated, and exceedingly productive; but the inhabitants are too poor, or rather too wicked, to support the preaching of the gospel. Their clergyman, therefore, the Rev. Mr. Baldwin, a worthy man, was lately, in this, one of the wealthiest of the farming towns in the state; one amply able to support three clergymen, dismissed, forsooth, for want of a maintenance!

The travelling through this town is superlatively bad. The road is crooked, and rough, and clayey, and unrepaired. The people, it is said, choose to pay fines, to those who are disposed to complain to the civil authority on account of the badness of the high-way, rather than to put it in a better state. The amount of the money paid last sea-

son, in this way, was, I understand, about $ 400, and I trust, in all conscience, they will be saddled with double that sum the present year.

We next passed through Shelburn—a town rich in taverns, thronged with people, not overstocked with good morals,—and arrived at 8 in the evening, at Burlington—a remarkably handsome village, situated on the margin of lake Champlain. From the lake shore the land rises, gradually, towards the East to the distance of one mile. From this elevation, on which stands the University of Vermont, and a number of other well-constructed, elegant edifices, you have a most enchanting prospect of the lake, of the islands in it, and of the mountains beyond. You have also a fine view of Onion river, and of a vast tract of country to the North, to the East, and to the South.

In this village resides one of the Judges of the Supreme Court of Vermont, the Hon. J. D. Farrand—a gentleman of extensive and profound legal erudition, and a man of incorruptible integrity.

At nine the succeeding morning, we embarked on the old Steam Boat, destined for St. Johns, and paid $4,00 each for our passage. The vessel, which was tolerably commodious, moved through the liquid element, at the rate of about six miles an hour. *C'est une mode de voyager bien commode*, for which we ought to bless the genius of Fulton.

We passed South Hero, North Hero, the Isle of Motte, and a number of smaller islands; saw the spot on which Com. Macdonough gathered his rich harvest of laurels;—had a distant view of the race-ground, where governour-general Prevost ran, with the Yankees, outran them, and acquired, by the velocity of his heels, imperishable fame!—and observed the fatal point in the lake, where a boat, a

few weeks since went to the bottom, and conveyed nine individuals suddenly into the world of spirits.

Near the Canadian line we took on board an Irishman, a Mr. Crawford, who, we soon found, was a complete farrago of every thing, that is droll, and of every thing, that is wicked. While the war raged, he kept a store open on the boundary between Canada and the States, and afforded every facility in his power, to those, who were engaged in the hazardous and fraudulent business of smuggling.

"Claudundur belli portæ."

The blessing of peace (a curse to him) being restored to the two afflicted countries, he is now removing the productions of his guilty toil, and repairing to a more auspicious scene of action.

The American custom-house officer now paid us a visit. He examined the captain's list of passengers, and of their baggage, but made no search.

Just as the sun fell below the horizon, we came in sight of the *Isle au Noix*, an island containing between forty and fifty acres, and one, which the British have strongly fortified. Our vessel was here brought to, but was detained only a moment. At ten in the evening we reached St. John's; our boat having ploughed its way from Burlington, a distance of 70 miles, in 13 hours. We were permitted to land, but not to take our baggage out of the vessel till morning.

We had noticed two or three spots on the margin of the lake, where the English have, since the declaration of the late disastrous war, thrown up, what our Irish companion, in his dissultory chatter, called *mortifications;* which consist of small embankments, or mounds of clay, surmounted with sharpened stakes, or poles, stuck into the ground in a perpendicular position.

Between Vermont and Lower Canada, there is, in rela-

tion to the territory, one very manifest and striking difference. The former is excessively mountainous; the latter is almost a dead level. The surface of the earth, in the neighbourhood of the northern part of the lake, is not, generally, elevated more than two feet, and in many places, not more than one, above the level of the water.

St. John's stands at the northern extremity of lake Champlain, on the west side of the Sorelle, or Richlieu, river, and is a little, dirty, contemptible village, comprising only a single street, having low, one story, misshapen dwellings on each side, and extending about a quarter of a mile. At a tavern we obtained a bed, but no sleep. We were precluded enjoying this comfort by a countless host of the creeping, manyfooted gentry, by which we were assailed as soon as we retired, and against which we were under the necessity of maintaining active hostilities during the livelong night.

Early after the light dawned upon us, Mr. J. and myself sallied forth, to take a walk, and get a narrower peep at the objects with which we were surrounded. We first betook ourselves to the old fort, erected, we were told, during the war, which rent Canada from France, and threw it into the hands of Great Britain. No trace of it remains, except a few detached mounds of earth. The small house in which the commander formerly resided, is still standing, and has recently been occupied by the officers of the troops stationed at St. John's. A little block-house, built at the same period, on the opposite bank of the lake, probably for the defence of the harbour, is apparently uninjured by the tooth of time. On the shore next to the fort, and but a short distance from it, stands a statue, in wood;—a representation of an officer, a Frenchman, I conclude, from his *costume*, who, in that bloody struggle, perished, fighting for his king, and his country. Who this personage was I have

not been able to ascertain. In the body of the statue are several bullet holes, which indicate the wounds he had received.

An old, shattered hulk of a large vessel, the workmanship of early days, lies here in the water, rotting. Near it we saw an Indian canoe, made of birch bark, and constructed in a very neat and durable manner. It was, by its shape, and the smoothness of its exteriour surface, peculiarly well adapted to move with rapidity through the water, and was, at the same time, so light as to be easily portable by a single person.

A number of practices prevail here, which are to be found in all the provincial towns of France. One of them is, that of cooking in the open air. We observed several females preparing breakfast by fires, kindled in the street. Over these they were frying cakes and broiling meat. We had completed our pedestrian excursion, and returned to the inn, the moment breakfast came smoaking upon the table. It was a better meal than I had anticipated. After satisfying the cravings of an appetite, rendered keen by the exercise of a nocturnal battle, and a morning walk, we started, in a hack, for La Prarie, distant 18 miles, and paid $1,50 each for our conveyance.

We proceeded more than a mile down the Sorelle, or Richlieu, river, which issues from the lake, and runs in nearly a direct course to fort William Henry, where it pours its waters into the St. Lawrence. It is here about 400 feet in width, but is so shallow, and so rapid, as not to be navigable even with boats. Timber, however, is conveyed down the stream in rafts. On each side of the river is a large road, all along which stand Canadian habitations, from twenty to forty rods apart. The ovens belonging to most of the houses, are built out of doors, on platforms made of wood or

stone. The chimney is generally erected at one end of the house, and is, all the way up, visible from abroad.

The road from St. John's to La Prariè is vastly worse than the roads ordinarily are in the United States. It is built in a marly soil, thrown up in the form of a turnpike, and is, for a great distance, almost perfectly level. Indeed, the country all around, as far as the eye can extend its vision, is an unbroken champaign. A hill of moderate height on the north-west of Montreal, and one, or two, off many miles to the south-east, are exceptions to this remark.

The fertility of the Canadian soil far exceeds my expectation. The land, notwithstanding its wretched tillage, yields into the hands of the husbandman, plentiful crops of wheat, oats, peas, potatoes, cabbages, and tobacco. Indian corn, or maize, is but little cultivated;—not because the soil or climate is uncongenial to its growth;—but because the Canadians are ignorant of its uses. The Canada thistle overspreads a great proportion of the territory. It is mown, like other grasses, and is said to make excellent fodder for horses. The ground is so flat, and so moist, it is necessary to till it according to the mode pursued in England; that is, to throw it, with the spade, or plough it, into beds, two or three yards wide, running the whole width, or length of the field.

From the point where we quitted the river, to cross the country to La Prarie the population is more scattered.—Sometimes we travelled half a mile, or more, over land occupied solely by brushwood; by diminutive birches, pines, and alders. Scarcely any trees of considerable size are to be seen. Wood is not easily procured. It costs in Montreal, from $4,00 to $6,00 a cord, and is brought from 30 to 40 miles. The mineralogy of this part of the province is uninviting. No substances of much value, iron ore except-

ed, have been brought to light. The land, which we have seen, is far from being stony. An overgrown mass of granite here and there appears.—We reached La Prarie about noon.

Here I obtained, for the first time in my life, a view of the majestick St. Lawrence,—one of the natural wonders of the western world,—rolling forward its immense flood to feed the voracious Atlantick. The village of La Prarie is situated more than 500 miles from the mouth of the river, which is, at this place, no less than 4 miles in width. The remainder of our journey—being nine miles—was performed in an open boat. Moved forward by the combined force of a rapid current, and of the labouring oars of the boatsmen, who entertained us with a couple of Canadian songs in French, we arrived at the end of our tour precisely in one hour.

As you descend the river, the city of Montreal presents itself to your eye in the most advantageous point of view. The bright, smooth, tin roofs of the houses produce a copious reflection of the solar rays, and add vastly to the beauty and grandeur of the prospect. We landed opposite the Old Market, and soon engaged lodgings, in Notre Dame Street, in the house of Mrs. Mc.D—— a Scotch dame,—a slut of the highest order; where we found little that was eatable, enough that was nauseous; and where we were obliged to encounter an army of the same nocturnal blood-sucking multipedes, which had visited us at St. John's.

Our attention was arrested by the appearance of several gentlemen, walking through the street, in which we resided, handsomely attired, and wearing broad black scarfs, passing over one shoulder, and under the opposite arm, reaching almost to the ground, and tied at the bottom in a large bow knot. They were going, we were told, to attend

the funeral solemnities of the richest merchant in Canada; a Mr. James Dunlap. He was a bachelor, but had long kept a concubine. His property, if report states truly, cannot be estimated at less than £500,000 sterling. He had five ships at sea, two of which have reached this city since his decease.

All the powers of his mind; all the faculties of his body, had been long and vigorously exerted in the accumulation of wealth. The king of terrors came unexpected. On his death-bed, this pitiable Dives anxiously wished, that his life might be protracted a few days; for what? That he might make peace with his offended God? That he might prepare for his exit? No: but that he might have the sordid satisfaction of seeing his vessels arrive, and of disposing of their cargoes. Miserable man! of what avail will thy ships and thy wealth be to thee, when thou art rotting in thy grave? Of what avail are they to thee, now thou art summoned to the tremendous bar of thy final judge? Earth thou preferredst to heaven; the endless joys of Paradise thou sacrificedst to the gratifications of a moment. Far more enviable would be thy lot, hadst thou lived, on earth, a half-starved beggar, and, Lazarus-like, secured the favour of the Saviour of sinners.

"Count all the advantage prosp'rous vice attains,
'Tis but what virtue flies from, and disdains."

The next day we went to view the nunneries. A party of ladies and gentlemen, mostly from Vermont, accompanied us. We repaired first to the convent of the Black Nuns. We were received into an ancient, spacious hall, where were seated about thirty of the nuns, who had been notified of our intention to visit them at a certain hour, and were therefore assembled, clad in their full *habit religieux*. They were polite, cheerful and affable. Several of them

attended us in our walk through the different apartments. We were conducted first to the rooms occupied by the *novices* (and novices, me thought they were indeed, to remain shut up in this prison.) Of these *raw nuns* we saw but six or eight, As we were quitting this part of the building, two, or three of the old nuns remained behind, till all the party had gone out, fearing, as we supposed, that we should throw a word into the ears of these *fresh nuns*, which might induce some of them to abandon the establishment.

In one of the rooms were exhibited for sale a number of trinkets; pinballs, work-bags, needle-cases, &c. the workmanship of these female recluses, of which we had politeness enough to purchase some small articles. In another apartment was the hospital, where the sick lay. In another, were deposited the drugs, with which the convent is furnished. Few apothecaries' shops contain so great a variety, or so commodious an arrangement. Miss Allen is the superintendent of this department.

From the building we passed into the garden. It is handsomely laid out, and exceedingly productive of fruit and culinary vegitables. A Siberian apple-tree hung full of fruit which was nearly mature. These apples, you know, appear beautiful to the eye, but are good for nothing to eat, while in their natural state, though they are excellent for preserves. A vine, running on the wall, was heavily loaded with noble clusters of grapes. One of the nuns informed us, that she had set out this vine two years ago; that it had been brought from France by an American gentleman, who, after attempting, unsuccessfully, to render it fructiferous in the United States, had given it to her. She causes it to be trimmed in the autumn, and buried in the ground. If it be pruned in the spring, it does not, she remarked,

recover of its wounds till late in the summer, and, therefore, seldom bears fruit that season.

From the garden we directed our steps to the chapel. It is small, but very elegant. It is decorated with a variety of paintings, but none of them are from the pencil of the first masters of the art. There is, however, one tolerably good picture, representing the birth of our Saviour.

The manner of making a nun is interesting. The female remains in her novitiate during one year. At the expiration of this period, if she chooses to withdraw from the sisterhood she has permission; if not, the following cerimony takes place; and is publick. A priest, in his official robes, attends in the church, which is in one part of the convent. The candidate presents herself. The priest, addressing himself to her, says, "For what did you come to church?" She replies, 'I came to be married.' "To whom? to the world? or to the church?" She, of course, answers, 'To the church.' She then throws herself on the floor of the convent, to indicate that she is dead to the world, and is covered with a pall, the four corners of which are held up by four nuns. The priest then puts in her mouth a wafer, or thin cake, which is the holy eucharist, takes from her the white vail, with which she is now invested, and gives her a black vail, which she is ever after to wear, and is never afterwards, while alive, to go without the walls of the nunnery.

Miss Allen, the only female, I believe, from the states, who has become a *religieuse*, we did not see. We were told, that she was sick. Others informed us, that she was not dressed. She is said by some to be reluctant to show herself to those, who are acquainted with her history. This others deny.

The abbess, to whom we were first introduced, is an un-

commonly respectable looking old lady, was very talkative, and quite facitious. She does not speak English. Politicks was the leading topick of conversation. Of the current affairs connected with the political world, and especially with those of France;—of every thing, which related to the downfal of Bonaparte, and the operations of the allies, she was surprisingly well informed. To the dignity of abbess all the nuns are eligible. The elections are popular. They all have an equal right to vote. She, who is favoured with a majority of the votes, is declared elected,

Montreal contains two other convents, but the inhabitants of neither of them are so strict in their religious observances, or so shut up from the bustle of the world, as those of the black vail. Is this community of females, you will ask, augmenting or decreasing? It is, I am told, by those who reside in its neighbourhood, on the decline. This opinion I formed also from the fewness of nuns, who made their appearance. The edifice is spacious, and could conveniently accommodate, and, probably, has heretofore accommodated, five times the number of individuals, who now occupy it. The present age is an age inauspicious to monasteries. That horrible night of ignorance, which favoured their generation and growth, is long since departed, never, I trust, to return. The period of monkish delusion, as well as that of inquisitorial barbarism, is, I imagine, drawing to its close. Mankind are too well informed; they are too familiar with the volume of divine inspiration; to be easily persuaded, it is their duty, to tear themselves from their connections, friends, and from the world; to deprive the community of their services; to deny themselves those innocent gratifications, which their benevolent and bountiful Creator has placed within their reach, and to impose on themselves those unnatural, and painful aus-

terities, which are frequently practised in cloisters, but which the word of God no where inculcates. What, then, upholds the establishment? What prevents its sinking into a state of absolute nihility. *Disappointed love, and a fondness for singularity.* These are the grand agents which people the nunnery.

A girl, who has had her head perpetually filled with romances; who has always breathed an imaginary atmosphere; who has, all her life, sipped nothing but nectar, and fed on nothing but ambrosia; who has been, times innumerable, enraptured with accounts of fairy queens, of heroes, and heroines; of nuns, and knights and 'squires;—such an one may be induced, as Miss Allen probably was, by her love of singularity, by her propensity to act the marvellous, to bury herself alive with these useless recluses.

But disappointed affection is a still more powerful agent. When a female is to be metamorphosed into a nun, the universal inquiry is, Who has deceived her? Whose treachery has impelled her thus to throw herself away? The conversion, that takes place, is unquestionably, owing, in nine cases out of ten, to the operation of this cause. If a man has solemnly pledged his word and honour, that he will marry a certain lady, and then fails to fulfil his engagements, all her plans of living are immediately disarranged;—all her fine prospects of happiness are at once blasted;—she is awaked suddenly from her dream of bliss.—She now supposes that all our sex are perfidious, grows sick of the world, and in a state of mind bordering on delirium, not unfrequently forms the rash resolution of devoting the remainder of her days to monastick seclusion. These are, in my opinion, the causes, which, in the present enlightened age, supply the convent with inhabitants.

We now shaped our course for the convent of the Congregational Nuns; where we were readily admitted; where we had a view of a garden, much inferior to the one, which we had just seen; and where we saw about a hundred female children, of very different ages, and from different sections of the country, whom the nuns were instructing. A part of these children lodge in the town, and attend the school in the daytime only; but most of them are under the entire controul of their instructresses.

To me it is astonishing, that parents, who belong in the States;—parents, who are good moralists, and some who are professedly pious, should send their offsprings,—those dear pledges of their reciprocal regard,—those objects of their highest earthly affection,—as they often do, to be instructed in this nursery of popish superstition. American children are assembled here for the avowed purpose of learning the French language; but they are compelled to repeat prayers to saints, every morning and evening at least; to dip their fingers in consecrated water; to cross their foreheads and breasts; and to perform numerous other religious, or rather sacriligious, ceremonies. Who does not know, that the catholick religion is more tangible;—that it presents a greater number of striking objects to the eye, than any other? It is a religion of the senses;—pure christianity is the religion of the heart. Who does not know, that impressions, good or bad, but especially bad, may easily be made on the infantile mind? that from these impressions habits will be formed, which may prove awfully destructive to their possessor? that the consequences of these impressions may be as durable as life, and perhaps, as durable as eternity?

A knowledge of the French language may be acquired with greater facility, with far more accuracy, and with in-

finitely less hazard to the morals of the student, within the United States, than it can in Montreal. A person, in this city, who is well acquainted with the language of France, hears a hundred words in a day, of whose signification he is as ignorant as a Laplander. Frenchmen have often told me, that they meet with nearly as much difficulty in understanding the Canadian tongue, as they do in understanding the English. Those children, who are sent into Canada to be taught French, and especially those, who are placed under the superintendence of the nuns, are, in my estimation, sent, at the risk of all good principles, of all good morals, of their happiness in the present world, and, what is of infinitely higher moment, of their happiness in

"That undiscover'd country, from whose bourn
No traveller returns."

On Saturday we rode, in company with Mr. and Mrs. H——, two as agreeable, hospitable, serious characters, as any, whom we have encountered at Montreal;—to La Chine, which is nine miles south-east from the city. The road is an uncommonly fine turnpike. The country in this direction is more uneven than it is between St. John's and Montreal. We passed a number of valuable farms. At La Chine, all the merchandise is embarked, with which the upper province is supplied. Goods are conveyed over land to this village; the river between here and Montreal being filled with rapids, is not easily navigable with boats.

On the opposite side of the St. Lawrence, from La Chine, is an Indian village, comprising, it is said, about fifty houses, or huts, and a Roman Catholic church. Many of these descendants of the aboriginal inhabitants of our Continent did we meet, and many more have we seen in the markets and streets of Montreal. Their complexion is

a yellowish brown. The sexes are not easily distinguishable by their dress. The females, however, are decorated with rather a greater variety of beads, and other trinkets, than the men. They both wear blankets, thrown over their shoulders, and falling almost to their feet. Some of them, I observed, had very beautiful mogasins on; some wore a sort of pantaloons, and others had nothing but a small bandage tied around their waists. Their whole appearance, especially that of the squaws, is disgustingly filthy. The women carry their children on their backs, on what is termed an Indian cradle, which is simply a piece of board, to which the child is strapped; another cord or strap is attached by both its ends to the upper part of the board, and passes over the forehead, the weight resting on the back.

The squaws bring berries, and the men baskets and brooms to market. They are exceedingly indolent, and addicted to the grossest species of intoxication. We saw numbers of them on the road, staggering home from the city in a deplorable condition; some falling headlong on the ground every few paces; some supporting their companions, who had a heavier load to carry than themselves; but all apparently "blind leaders of the blind," and all exposed, in no ordinary degree, "to fall into the ditch."

On our way to La Chine, we called on the Rev. Mr. Easton, who preaches in Montreal, but resides, during the summer on his farm, which is six miles out of town. I had an introductory letter to him from the Rev. T. A. Merrill.—Mr. E. is the only evangelical clergyman of the presbyterian order in the city. He is a native of Scotland, was educated at the university of Edinburgh, and came to the western continent, some years since, with the Rev. Dr. Mason of New-York. After continuing a considerable length

of time in the States, his health failed, and, travelling to regain the lost boon, he proceeded into this province, and finding the Canadian climate congenial to his constitution, remained at Montreal. His matrimonial helpmate he selected from Salem, in the state of New-York. They both accompanied us back one mile, to a Mr. Fitch's, where we spent an agreeable afternoon.

There is another presbyterian clergyman in Montreal, but, if Fame, who, you well know, is a noted tattler, does not lie, his practices, whatever his creed may be, deviate widely from those of the evangelists. He goes unhesitatingly, into dining and card parties on the Sabbath, and drinks and gambles till midnight, with persons of the most dissolute and libertine character. Such a priest at the altar!

Mr. H. assures me, that lewdness and profanity are the predominant vices of Montreal. Of the enormous prevalence of the latter I have the most decisive evidence. My ears are stunned by it every time I appear in the street. From the Canadians, I, incessantly, hear the expressions, *sacrè, sacré Dieu, sacristie.* The Scotch, English, and many of the Yankees, are in the habit of pouring forth a volley of horrid oaths on the most trivial occasions,—even in their most familiar colloquial intercourse.

In this city concubinage is said to be extremely common. Several old bachelors are to be found here, who are opulent, who live luxuriously, and who keep four, or five, *cheres amies* apiece. The chief justice of the province, judge M. a man of the highest legal reputation,—a man, in regard to all publick concerns, of unsuspected integrity,—exhibits in private life a most detestable character. He has a wife, and, besides her, supports, at least, three or four concubines. What a model for imitation!

It is the opinion of Mr. H. and others, that lewdness has

been encouraged by the establishment of a foundling hospital. Children are deposited, almost every night, near the door of this asylum. To these helpless beings, abandoned by the hard-hearted authors of their existence, but little care is extended, and, consequently, most of them expire in early infancy. Sometimes a billet is attached to the child, informing that, if suitable solicitude towards the foundling be exercised, the person, who has the charge of it, shall be rewarded. To such, adequate attention is afforded; and the child is, usually, at the age of four or five years, claimed and taken away.

The return of the Sabbath was announced by the long-continued ringing of the bells of the catholick church. At 9 o'clock, I went to attend the worship in this church.—The edifice is large and elegant, and, according to the date, placed on its front, was erected in the year 1725.—The upper part of the interiour of the building is eminently superb. It is constructed in the form of a large hollow frustrum of a globe, whose diameter is 150 or 200 feet in length, and is thick spangled over with stars of gold; the whole designed, unquestionably, to represent the natural firmament. A full-length statue of our adorable Saviour is fastened near the vertex of the arch, apparently in an ascending position, exhibiting the wound made in his side by the soldier's spear, from which water and blood are gushing forth. In different parts of the edifice are paintings, some of which are admirably well executed.

Most of the assembly had convened before I entered it. Each Catholick, as he came in, dipped his fingers in a vase of holy water, and then crossed his forehead and his breast. There are, I have often observed, stronger indications of elevated devotion—a greater fixedness of attention to the duties of the sanctuary—and a more profound solemnity in

a catholick assembly, than in any other congregation of people whose worship I have ever witnessed. The priests, to the number of 18 or 20, soon made their appearance; as did a considerable company of chanting boys. No sermon was delivered. It is vacation with the priests. A discourse is commonly pronounced by them in rotation. One of them, however, gave the assemby an exhortation to abstain from pollution during the approaching festival. A priest differently habited from the rest, and attended by another of his order, walked about the church and sprinkled holy water on a portion of the audience, from a little cylindrical silver vessel. The meaning of this ceremony I was unable to develop.

At eleven, I left the catholick service to go and hear the Rev. Mr. Easton. With his performances we were highly gratified. His discourse breathed the spirit of unadulterated devotion, and his manner of pronouncing it evinced,

"That he is honest in the sacred cause."

His pronunciation is not English. It is broad Scotch. His meeting house and his audience are both small.

At three o'clock we attended the service in the English church, which is, probably, one of the most magnificent structures of the kind on this side of the Atlantick. Its interiour arrangement is singular. It has no gallery, except in front of the pulpit.—The Rev. Mr. Jenkens was the preacher. He gave us a tolerably interesting sermon.—He is settled in connection with the Rev. Dr. Mountain, whose character is not unknown to you. The clerk's voice was terrifick.

On the succeeding morning we abandoned our odious lodgings, and have taken up our abode with a Mr. Hubburd, formerly of Windsor in Vermont, who has recently opened an excellent boarding house in this city—a house

which we can cheerfully, and conscientiously recommend to all our friends, who contemplate visiting Montreal.

The following Thursday Mr. Frothingham, a gentleman to whose politeness I am deeply endebted, introduced me to one of the catholick priests, whom I found to be a remarkably companionable, well-informed man. He conducted me to the Catholick College, and made me known to one of its professors, who afforded me nearly all the knowledge I possess, respecting that seminary. There are, ordinarily, he observed, about 300 students, belonging to it. They are most of them small boys. It is now vacation.—The walls of the edifice now contain nobody, but a few domesticks. A well-cultivated garden, and extensive playgrounds are connected with the institution. One practice, he mentioned, with which I am greatly pleased. The boys are not allowed to engage in amusements of any description, without an instructor, to superintend them,—to prevent profaneness, and to check the tide of disorderly passions. In rainy weather, they are permitted to exercise in an apartment in the College, provided for the purpose. The rooms in which they sleep are capacious enough to contain from 20 to 30 beds apiece. Each of these apartments has a convenient bedroom adjoining it, in which a tutor lodges, and in its door is a hole, through which he is enabled to discover any irregularities, which occasionally occur in the little republick, over which he is set as a guardian. Indeed the lads are, except in vacation, under the immediate notice of their instructors, whether at study, or at play, abroad (for they frequently take long walks with them,) or at home, awake, or asleep.

In the museum, library and philosophical rooms, every thing appears antiquated. I saw none of those invaluable books on the mathematicks, physicks, chemistry, astronomy,

natural history, &c. which have, in the present age, been published, in France or in Great Britain. Of the admirable works of Cuvier, Laplace, Legendre, Bertholet, Davy, Playfair, and other eminent authors now living, they are totally ignorant.

The course of instruction pursued in this college is, I venture to assert, 200 years behind that generally pursued in France, and 50, at least, behind that pursued in the United States. The student enters and leaves the seminary whenever he, or his guardian, pleases. No degrees are conferred. The Professor of Natural Philosophy, showed me his lectures. They are in manuscript, and in Latin. The pupil, he remarked, is suffered to make objections to any part of them, but his objections must all be communicated *in Latin!* I am told by gentlemen in the town, and I fully credit the assertion, that lads acquire, in this institution, almost no knowledge, which is of any consequence to them in subsequent life.

The priest proposed in the afternoon to lead me to the seminary of catholick priests. The edifice, like all others belonging to that order of men, was spacious and well supplied with neat, but ancient, furniture. The library comprehends all the valuable works of the Fathers, and a few good modern productions.

From the seminary we went to visit a Mr. Gibbs, an English gentleman, who had invited us to his house, and whom we found to be very conversable, remarkably hospitable, and tolerably well stocked with drollery.

From Mr. Gibbs' we proceeded to the Gray Nunnery, where the nuns were praying and counting their beads.—I asked them if they were going to celebrate mass. "No. Monsieur," said they, "but we shall to-morrow." They were preparing themselves to observe the solemnity.

This establishment is a sort of hospital, or rather an almshouse, as well as a foundling hospital. The nuns administer relief to the sick, consolation to decayed age, and take charge of the outcast infants. We noticed thirty or forty old men and women, whose lamp of life had sunk low, and was but just quivering in its socket. They were hanging over the grave, and will shortly be seen no more.

We were led into the apartment where the foundlings are kept. We saw a considerable number of them. One little thing, who had been an inhabitant of this "vale of tears" but a few days, was crying piteously. I inquired the cause, and was told, that it was sick. On farther interrogating the nurse, she informed me, that the child had remained so long in the open air before it was found, that it was almost dead. They are frequently, I learn, quite deprived of life before they are taken into the hospital.

"But, pray, stop, stop, my friend. You are making out a folio, I fear. You are doing, what Butler said the Royal Society of London did,—"magnify a mouse to an elephant." You have not learned the salutary lesson, which President Witherspoon taught his pupils,—"to stop when they had done." This is a lesson, which some few congressional orators have not yet learned; so, you see, I can plead precedent for my ignorance. But, my dear Sir, I have not yet *done*. Have patience. I will depict a rough draught—a mere general

SKETCH OF MONTREAL,

and then my pencil shall have liberty to rest.

The city of Montreal is situated on the south-east margin of an island in the St. Lawrence, which is about 30 miles in length, and 10 or 11 in breadth. A hill rises on the north-west to a considerable height, which Cartier, a French navigator, ascended in 1535, and gave it the appel-

lation of *Mont-Royal*, or royal mountain. Hence the name of the island; and of the city. We mounted, with Mr. H. to the summit of this elevation, from which was afforded a fine prospect of the river, of the city, and of the country around it, to a wide extent.

In Montreal, there are but two long, regular streets; viz. St. Paul's and Notre Dame street. These run nearly parallel with each other, and with the river. From these, short streets run in almost all directions. St. Paul's, which is on the north bank of the south arm of the St. Lawrence, is the street in which most of the commercial business is transacted, and the one, consequently, where are exhibited most of the activity and bustle of the town. It is narrow, and, especially in wet weather, excessively filthy. In Notre Dame street, which is neater, broader, and, in every respect, handsomer, stand most of the publick buildings.—Here is the catholick church—a magnificent structure, already described; the courthouse and jail,—both elegant buildings; the government house, where the governour resides, when he is in town; and, at the eastern extremity of it, is the citadel, where is a guard house, a company of soldiers, and between forty and fifty massy cannon. The citadel occupies the most elevated spot of ground in the city. As you go up Notre Dame street, on your right, a little before you arrive at the citadel, you observe a lofty stone monument, encircled with iron railing. It was erected to perpetuate the memory of the irritable, disobedient, immoral, brave, dauntless Lord Nelson. The English nation have complied with the injunction of the poet, in relation to this character, in more instances than one.

"Plant the fair column o'er the *vacant* grave,
A hero's honours let the hero have."

Montreal supports two markets, which comprise a toler-

able variety, and a sufficient quantity, of the necessaries, but scarcely any of the delicacies of life. The market-people form a most motley collection of beings.

There are four populous suburbs connected with the city; viz. the suburb *de Quebec*, the suburb *de St. Lawrence*, the suburb *de St. Antoine*, and the suburb *regulec*. Most of the houses in the suburbs are but one story in height; those in the city are, in general, two stories.

No census of the population of Montreal has been taken since the year 1783. Its present number of inhabitants can, therefore, only be conjectured. Some judicious men here state it at 18,000. Others elevate it to 23,000. The truth probably lies somewhere between these two *suppositions*. There may be 20,000. Three fourths of these, at least, are descendants from the original French settlers. The remainder are chiefly English, Scotch, Irish, and Yankees.

"For what purpose do so many of our countrymen resort to this province?" There are two classes of men, who migrate to Canada, and they are actuated by extremely dissimilar motives. The one have been guilty of violations of the law,—of punishable offences,—and have fled hither to avoid civil castigation,—to elude the stroke of justice. This class is numerous. It is well known, that Canada has, for a long period, answered the same end for runaway scoundrels, that certain old churches on the eastern continent did for insolvent debtors.—It has offered a safe retreat—an asylum—a sanctuary to numbers of persons, whose enormous delinquencies had richly merited for them perpetual imprisonment or the halter.

The other class are led to Canada by the hope of rapidly amassing riches—by the sole desire of ameliorating their pecuniary condition. But none come hither, I am inform-

ed, from Europe, or from the States, (those only excepted whose crimes will suffer them to live nowhere else,) with an intention to remain here during life. As soon as their eagerness to accumulate wealth becomes satiated, should that happy moment ever arrive, they calculate to exchange their abode in this dreary region of the globe—in this terrestrial purgatory,—for a residence under some more propitious skies.

This is indeed a very eligible situation for one whose supreme object is the amassment of money, let his occupation be what it may. Two or three farmers, formerly from New-England, who have resided in the neighbourhood of Montreal, but a few years are growing quite opulent.—Merchants, who are economical, acquire in a short time large estates. It is the same with mechanicks of almost every description.

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Extract of a Letter from Henry R. Schoolcraft, Esq. to the Conductor of the Repertory., dated

Keene, N. H. October 30th, 1815.

DEAR SIR,

I send you a list of all the glass works in the N. England States, with the rise, progress and present state, of the major part of the works referred to. I am personally acquainted with them all, and should you think the insertion of this schedule, would be interesting to the readers of your magazine, I can avouch for the correctness of the statement. I also inclose you some remarks on the phenomena of burning springs. There can certainly be no harm in forming opinions on this subject, nor in laying them before the publick, it being already matter of publick enquiry and concern.

LIST OF GLASS FACTORIES IN NEW-ENGLAND, 1815.

MASSACHUSETS.	DISCRIPTION OF GLASS.				No. of furnaces in respective factories	No. of Pots, or Crucibles in each furnace.	No. of blowers constantly employed	Total No. of Works.
	Flint	Crown	Cylinder	Bottle				
Boston		1			1	10		
South Boston	1				1		3	
Chelmsford			1		2	10	10	
Warwick			1		2	10	10	
Chester			1		2	10	10	
Cheshire		1			1	10		
N. HAMPSHIRE.	1	2	3		9			6.
Keene	1				1	7	4	
Keene			1		2	10	10	
CONNECTICUT.	1		1		3	17	14	2.
East Hartford				2	1	6	6	
Coventry				1	1	6	6	
VERMONT.				3	2	12	12	3.
Middlebury	1				1	5	3	
Salisbury			1		2	10	10	2,
	3	2	5	3	18			13.

BURNING SPRINGS.

The discovery of a burning spring, in Ontario County, N. Y. was made publick through the medium of your magaziue, sometime, during the last year. (See No. 4. vol. 1.) Being lately, on a journey through the western part of that state, I have observed the same phenomenon in Vernon, Oneida County ;—the discovery and appearance of which, bear a great similitude to the discription, formerly given, of the one above alluded to. As I do not know, that water can be rendered inflammable by combination with any of the gases, or acids, I ventured to contradict the popular opinion of its being *burning water*, and to refute this hypothesis, made such investigations of the nature and cause of this phenomenon, as time, and circumstances, would permit. And I lay my conjectures, before the philosophical and chemical publick, with a hope, that they may conduce to a further investigation of the subject.

On first approaching the spring, (over which a building has been erected, for the accommodation of those who resort to it,) I immediately saw, that the water did not burn, but that a subtle inflammable gas, formed in the earth beneath, passed up through the water. On applying a lighted candle to the surface of the water, the gas instantly takes fire, and burns with a red flame. This I at first mistook, for the sulphuretted hydrogen gas, but from the circumstances, of their being no absorption of it, by the water, from its fetid odour, inflammability, and colour of the flame, I conclude it to be the light, carbonated hydrogen gas. This is hydrogen gas, (a component part of water) holding charcoal in solution. Hence, I draw the conjecture, that this gas indicates the presence of a bed of *mineral Coal* in the earth beneath, where, by certain processes of nature, hydrogen gas, is liberated, which uniting with

carbon, finds its way through the aperture of the spring and escapes into the atmosphere, where it undergoes combustion on the application of flame.

Carbonated hydrogen gas, may be obtained by chemical processes, from various animal, vegetable, or mineral substances. Nature forms it in low grounds, on the surface of putrid waters, in burying places, and common sewers,—and wherever, under certain circumstances, a decomposition of animal and vegetable matter takes place. The *ignis fatuus*, may, in some instances be owing to this gas, though undoubtedly, that phenomenon is generally produced by phosphorus, distilled from decayed vegetables, during the hot summer days, which exhibits the appearance of a luminous body, on the approach of night.

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Extract of a letter from the Rev. Daniel Smith, to the Conductor of the Repertory, dated

Andover, Oct. 3d, 1815.

Dear Sir,

I have not forgotten my promise to write to you; though I confess I have been strongly tempted to neglect the performance of it. For I find in examining my papers, that I have very little information of the kind you desired me to communicate. On my late tour through the western and southern states, it was no part of my business to attend to the natural history of the country. My thoughts were so occupied with other business, that I scarcely gave it even a passing attention. In passing, however, down the vast valley of the Mississippi, we could not but observe some things, too obvious, and novel, and interesting, to escape our notice. We were fully convinced that the natur-

alist, and the antiquarian, would find much to gratify their curiosity, and to reward their researches. After you reach the Allegany mountains, the whole country seems to have been projected on a new and grander scale. The mountains themselves, the forests, the prairies, and the rivers beyond, each in their turn, excite the admiration of the traveller.

The Mississippi, fed by a thousand tributary streams, receives the Illinois, and passing on, unites with the turbid Missouri, larger by far than itself. The congregated waters roll forward;—meet those of the vast Ohio, and instantly swallow them up. When I arrived at that interesting spot, I felt an indescribable emotion of grandeur, in contemplating the scene. Yet from that point the assembled rivers must flow more than a thousand miles before they reach the ocean.—Gladly would I turn the attention of christian America to those mighty streams:—not because I see on their banks unexampled fertility, and an inexhaustible source of wealth; but because their shores will, one day, be lined with an immense population,—and because now is the time to sow the seeds of morality, and establish the institutions of religion in this rising world.

A more minute observer than myself would find in that country, many animal, vegetable, and mineral productions, that would at once excite and gratify his curiosity. I was more particularly impressed with the goodness of divine Providence, in supplying that country so liberally with lead, iron, salt, coal, and other useful minerals. Coal mines abound every where, and are of immense service, particularly, to those parts of the country, that are destitute of wood. Salines are also very frequent. The principal that are now worked, are those on the Kenahway, and the Sciota, and the United States, Saline in the Illinois

Territory, a little below the mouth of the Wabash. At the latter place, 3600 bushels of salt are manufactured in a week, (or 187,200 bushels annually.) The salt water is taken from wells sunk, or rather *bored*, to a very great depth, often through a solid rock. About 70 or 80 gallons of water generally produce a bushel of salt—but some times 30 gallons have made a bushel. At the U. S. Saline, the water, after it is taken from the wells, is conducted one or two miles, to the woodland, in tubes before it is boiled. To make it ascend the hills, it is first elevated in buckets to a sufficient height into the air. This is done by machinery turned by a horse.

The lead mines are in the Missouri Territory, about sixty miles west from St. Genevieve. They extend over a considerable district of country. The lead is found near the surface of the earth, and is supposed to be inexhaustible. The annual produce of the mines, two years since, was 1,525,000lbs. of lead.—Surely it was a benevolent hand that scattered these valuable minerals, in this inland country.

The antiquarian might also find, even in the western wilderness, many objects of no ordinary interest. Scattered through the whole country, from Lake Erie to the gulf of Mexico, there are many remarkable embankments and mounds of earth, evidently of no recent origin. Some of them are very large;—some of the *mounds* are sixty or eighty feet high. They are generally truncated cones.—For what purpose were they thrown up?—is a question which has already puzzled many heads, and will probably many more. Some suppose them to have been cemeteries;—others say they were observatories;—others the sites of palaces and of temples. The *embankments* have in some instances the appearance of fortifications. But the mist of ages rests upon their origin.

THE KEENE GLASS FACTORIES.

Keene, N. H. 13th February, 1816.

To the Conductor of the Repertory,

Sir,—Among the manufactures, which have attracted the attention of capitalists during the late embarrassments on commerce, that of Glass-making has been entered into to a considerable extent and with some success. As this is an article, necessary both to the comfort and convenience of life, and one for which we have hitherto been chiefly dependant upon foreign manufactures, it must, at least, be interesting to the patriot and the manufacturer to know, that our country affords the materials of which this article is formed, and that we have men sufficiently versed in their nature and properties to prepare and put them together. Moreover, the introduction of such manufactures into various sections of the country, not only renders us more independent as a nation, but keeps within the coffers of individuals vast sums, which have heretofore flown out to the invigoration of foreign nations. We have paid European manufacturers and merchants their respective profits on Glass; the materials of which nature has with a bounteous hand embedded in our own soil, and which art, if not shackled by commercial prejudices, would dig up at a little more than half the price we pay them. Nay, it is a fact, that we furnish them with potash, which is one of the chief ingredients of glass, and afterwards purchase the same article back in the form of glass-ware at a very enhanced price, leaving in their hands the entire profits arising from the manufacture.

Still some will contend that we cannot make glass with any profit; others, that it is useless to attempt a competition with Europeans, whose long skill and experience in the

art will always enable them to maintain the superiority which they now possess. Had this opinion generally prevailed in England six hundred years ago, Venice had still been renowned for its glass, and English manufactures had now lacked that beauty and perfection for which they are so highly esteemed.

With these remarks I avail myself of the occasion to lay before the readers of your magazine some notice of the successful establishment of a manufactory of Flint Glass in this town. These works were built at the instigation of Capt. Timothy Twitchell, one of the principal proprietors, and are situated half a mile from the village on the road leading to Boston, eighty miles distant from that town, and twelve from connecticut river. The Glass-house is an octagonal wooden building, forty two feet at the base, and rising in the form of a cone to the height of fifty three feet, where it terminates in a spacious ventilator for the escape of smoke and other gaseous bodies, which are liberated in great abundance from the burning of wood in the furnace below, and the fusion of the materials employed for making glass. There are wings on each side of the main building, divided into convenient apartments for preparing the materials and crucibles, and for various other processes necessary in the manufacture. Connected with this manufactory are works for cutting and polishing all sorts of glass, which enables the proprietors to have their ware finished, with a beauty that has been long called for in American glass.

This manufactory has been in operation about three months;—it contains one furnace of seven crucibles or pots, and furnishes employment for sixteen workmen, exclusive of those employed during the winter season for chopping wood. Respecting the quality of the ware, I will add, that

it has obtained a high reputation for its strength and beauty, and that the local advantages of the works and the success which has attended them generally, give the proprietors full confidence in the prosecution of them.

There is also, in this town, a manufactory of Cylinder window Glass, situated in the environs of the village about one mile distant from the Flint works;—which is carried on by an incorporated company under the name of the President and Directors of the New Hampshire Glass Factory, with a capital of $50,000. These works contain two furnaces of 10 pots each, and give employment to about twenty five artists, mechanics and labourers in the internal department. They are conducted by a superintendent, who directs the building of the necessary furnaces and ovens, the proportions of the ingredients for glass, and oversees the various mechanical processes within the works,—and an agent for the supply of materials, sales of glass, and keeping of accounts.

These works have been in operation about one year.—Their success was for a while opposed by numerous difficulties, arising from a want of proper materials, and from other causes, which may in a great degree be considered as incidental to the establishment of a work of this kind and magnitude. These difficulties are now remedied, the glass being generally esteemed equal to any of the kind, elsewhere made, and I doubt not, the establishment will become a source of great emolument to those who have embarked their capital in it.

As I am frequently interrogated on the subject of Glass, and as it may serve to prevent the reiteration of the same answers to the same questions, I will add some brief remarks on the nature and formation of this substance, for general information. Glass is a factitious body, produced

in a very high heat from silicious sand, which is rendered fusible, and transparent, by a due admixture of alkali, either potash or soda. Various other earthy, alkaline and metallic substances are occasionally employed, either as accessory fluxes, or to fulfil particular purposes, and the differences to be observed in the colour, purity, strength, density and brilliancy of glass are owing principally to this circumstance. The oxides of lead, manganese and arsenic, and also nitre and borax, are added in the compositions of Plate and Flint glass, and lime, woodashes, common salt, and sometimes also the oxide of cobalt, in those for Crown and Cylinder Window glass, and other metallic calces in the formation of a variety of coloured and opaque glasses. Thus glass in fusion is tinged *red* by the oxide of gold, *green* by the oxides of copper and iron, *blue* by the oxide of cobalt, *violet* by the oxide of manganese, *yellow* by the oxides of silver, antimony and lead, and *opaque white* by the oxide of tin. Green bottles are made of the coarsest and least fusible materials of all. Smalt, which is an article used by sign-painters, is a fine blue glass, made from the oxide of cobalt, pulverized flints and soda, and afterwards ground in a mill and passed through a sieve, the finer particles are brought to an impalpable powder and sold under the name of *powder blue.* The making of artificial gems or *pastes* is also a branch of this art, as well as the preparation of Potter's glazing of all sorts.

I am,

very Respectfully

Your obedient Servant

HENRY R. SCHOOLCRAFT.

Extract of a Letter from a gentleman, resident near Sparta in the State of Georgia, dated 16 October, 1815, to the Conductor of the Repertory.

DEAR SIR,

Last Friday and Saturday I visited the remains of an ancient fortification in this County, about 10 miles N. by W. from Sparta, which, though very much injured, continues to excite the attention of the inquisitive traveller.—It is situated on an extensive plain, ascending gradually, but slowly, to the North. Its intrenchment is nearly in the form of a parallelogram, enclosing between 7 and 8 acres. The length of the west line is about 270 yds.; of the north 120; of the east 240; and of the south, which is a segment of a circle, about 125 yds. From a continued cultivation of nearly 30 years, the redoubt is very much defaced, and the intrenchment in many places almost filled. The first settlers inform me, that, within their remembrance, the ditch was uniformly about five feet deep, and, according to present appearances, it was 12 feet broad.—There are yet four places in the intrenchment; one about the centre of each side; where the ground evidently was never broken. These probably were defended by gates, and served as places of egress and ingress, when occasion required.—Within the intrenchment, contiguous to the east side at an equal distance from the N. and S. part of the intrenchment, is a large mound of earth, covered principally with shrubs and trees of the second growth, in the shape of a frustrum of a cone, whose base is 190 yds. in circumference, its top 63, and the perpendicular height about 16 yds.

Conjecture led many to suppose it was hollow, from the fact, that the centre of the top, was considerable lower than its circumference; and curiosity excited them, two or

three years ago, to attempt searching its bowels. They did however but little more than attempt, for after having dug 4 or 5 yds. they desisted from their undertaking, though not without having made some discoveries. After digging about 3 feet from the top, they came to a layer of charcoal, half consumed pine bark, cane, and other vegetable substances. Logs were found lying in different directions—a number of coarse buds about the size of a robin's egg—and pieces of earthen pots coarsely fabricated, such as are found in various parts of the country. Penetrating still farther, they passed through successive layers of earths, variously intermingled,—most of which were evidently brought from the intrenchment, but some were doubtless brought from the distant lagoons, being what is here termed pipe clay, of a greyish cast, and though coarse, possessing considerable tenacity—till they came to a layer distinct from the rest, and smooth as the walls of a house. Between this and the adjacent earth, any thin substance could very easily be pushed. This layer is about five feet below the charcoal. After passing *this*, nothing is deserving of notice, except some cavities containing dust, which is evidently decayed animal and vegetable substances. Several of these I found in digging on the sides of the aperture.

In a S. W. direction from the mound, is another of very inferiour magnitude. Indeed it is now impossible from its appearance to form any just conclusion with regard to its original size, as it has been very much defaced with the plow. But from the number of human bones, which lie on its surface, we may conclude that it was, formerly, a receptacle of the dead. It is said, that two skeletons were plowed up here, in a sitting posture, as two friends engaged in earnest discourse. Indeed, Dear Sir, I could not but re-

gret, that the possessors of these *relics* had no more regard, if not to monuments of antiquity, at least to the ashes of the dead, than to make them the miserable means of producing a few hills of Cotton.

In the same direction, without the intrenchment, is another mound, which neither avarice, nor curiosity has disturbed, of a similar shape to the first, though considerably inferiour. The circumference at its base is about 100 yds. This was undoubtedly erected for the defence of a bold spring, which rises near its foot, and from which the inner earth was supplied with water.

Two questions naturally arise, By whom were these works built? and when? In answer to the first, it may be confidently said, that they are the works of a more civilized race of beings than the present Indians, as they are built upon the best plan of military fortification. Small mounds are said to extend to the Oakmulgee, where they terminate with a fortification similar to the one above described. It is also said that many iron utensils are found in the vicinity of this last, a clapper of a bell, and indeed a piece of a bell, which is now at Milledgeville, having three letters engraven on it. There have been a horse shoe and a knife found near this place, of very antique form. The horse shoe almost covered the horse's foot; and instead of corks, the ends were turned up as fenders to his heel. It is pretty well ascertained, that the horse shoe resembles those of the Spaniards, who first settled in Florida.—And with regard to the second, it may be said that they are *old*, as the Indians knew nothing of their founders, by their traditions, and as the trees, growing on them when this country was first settled, appeared as old as those in the circumjacent forests.

Before any theory is formed respecting them which can afford either interest or amusement, it will be necessary to

ascertain more facts relative to those on the Oakmulgee, particularly as it regards their utensils. The Rev. Mr. B—— calculates, he informs me, to collect and digest all the information he can relative to these and other curiosities in this State, and prepare it for your interesting *work*, the *Repertory*.

The mineralogical field in this part of the State is very limited. There is scarcely any thing here but clay and quartz, and iron sand, a little coarse cornelian, amphiboloid, and mica.

Yours respectfully,

B. GILDERSLIEVE.

:o:

REMARKABLE FACT.

Extract of a Letter from Professor Dewey of Williams' College, dated 27th Nov. 1815, to the Conductor of the Repertory.

"I will give you an account of a singular fact, never published that I have seen;—perhaps it may not be worthy of a place in the Repertory—you will judge.

"In 1806, or 1807, a large bug eat out of an apple-tree table, the property of Mr. P. S. Putnam of this town. Since that time, two more have come out in the same manner. The last was in 1814. The tree, from which the table was made, grew in Pomfret, Conn. It was cut down in 1786, and had then stood 65 years from the time it was transplanted from the nursery. Allowing 10 years for the time before transplanting, it was 75 years old. The cortical layers in the *leaf*, from which the bugs came out, are about 60, and begin near the heart, as is evident from their convexity, and probably within 5 of the heart. About 10 of the cortical layers have, then, been cut from the edge of the leaf to the outside. The bug, which eat out last, was

the nearest the heart,—distant from the edge 30 cortical layers, and from the outside, on the above supposition, 40 —and as the tree had been cut down about 28 years, the egg must have been laid about *sixty-eight* years before the bug eat out. The eating of the bugs was heard for several weeks before they appeared. One of them was for some time preserved by Dr. Fitch. It was about 1 1-4 inch in length, and 1-3 inch in diameter—strongly made—colour, dark glistening brown, with tints of yellow. It eat about 3 inches in the line of the grain, before it came out. The table had been used for some years in *ironing* clothes. Did the heat, thus communicated, hatch the eggs, and bring the bugs into life?"

:o:

ELECTRIC EEL.

[This account of the electric eel is copied from a review of the *Tableau Physique des Regions Equatoriales &c. Par Alexandre de Humboldt* 4to. *Paris*, 1807. published in the eighth volume of the Edinburgh Review.]

The rivers and lakes of the low provinces of Venzuela and the Caraccas abound with the *gymnotus electricus*, or electric eel,—called *temblador* by the Spanish colonists, and *anguille tremblante* by the French settlers of Guyana,—which possesses the singular faculty of stunning its prey by an electric discharge. It is, however, met with most frequently in the small stagnant pools that are dispersed at intervals over the immense plains which extend from the Orenocco and Apure. The old road near Uruticu has been actually abandoned, on account of the danger experienced in crossing a ford, where the mules were, from the effect of concealed shocks, often paralyzed and drowned. Even the

angler sometimes receives a stroke, conveyed along his wetted rod and fishing line.

The electric eel is of considerable size, being about six feet in length. The structure of its nervous system has been accurately described; but the comparison of its cellular furniture with the composition of the electric battery, is entirely fanciful; and seems nowise calculated for assisting us in the explication of the phænomena. The brilliant science of electricity, it must be confessed, is still in its infancy. Philosophers have assumed the existence of an electric fluid without proof, and talk of the galvanic current as familiarly as if they were describing the operation of a real and tangible substance. Were such expressions merely figurative, and forced upon us by the poverty of language, they would be liable to no material objection. But if they only serve to fill the imagination, and supply the want of solid argument, it is high time to reject them. We may safely affirm, that the supposition of an electric fluid has not contributed in any degree to explain the appearances. All that we know of electric agency consists in a system of attractions and repulsions, of which the chief relations have been clearly disclosed. When a substance receives or conveys an electric shock, all its particles, during a certain minute portion of time, suffer a mutual and violent distension. The degree of effect which is produced, must hence depend on the intensity of action combined with its duration. The convulsive agitation excited in the animal frame by an electric discharge, is caused by the general, though momentary, repulsion which it communicates to the train of nerves. The *gymnotus electricus* appears to have the power of reversing this process. By an effort of volition, perhaps, it can suddenly give its nervous system the internal derangement appropriate to the electric agency, and thus dart its

influence among the bodies in its vicinity. The sensation which the *gymnotus* occasions, is highly painful, and leaves a numbness in the parts affected. It indeed resembles more the effect of a blow on the head, than the shock of a common electric discharge. Analogous to the galvanic excitement, it may however depend less on the absolute intensity of action, than on the length of its duration. In both cases, the diffuse shock received is more akin to the impression made by the residuum of an immense battery, than to the sharp twitch occasioned by the explosion of a small charged jar.

The Indians entertain such a dread of the *gymnotus*, and show so much reluctance to approach it when alive and active, that Humboldt found extreme difficulty in procuring a few of those eels to serve as the subjects of his experiments. For this express purpose, he stopt some days on his journey across the *Llanos* to the river Apure, at the small town of Calabozo, in the neighbourhood of which he was informed that they are very numerous. But, though his landlord took the utmost pains to gratify his wish, he was, after repeated attempts, constantly unsuccessful. Tired at last of disappointment, he resolved to proceed himself to the principal spot which the *gymnoti* frequent. He was conducted to the Cagno de Bera, a piece of shallow water, stagnant and muddy, but of the heat of 79 degrees, and surrounded by a rich vegetation of the *clusia rosea*, the *hymenæa courbaril*, the great indian fig-trees, and the sensitive plants with odoriferous flowers. Here the travellers soon witnessed a spectacle of the most novel and extraordinary kind:— About thirty horses and mules were quickly collected from the adjacent savannahs, where they run half wild, being only valued at seven shillings a-head when their owner happens to be known. These, the Indians hem on all sides,

and drive into the marsh; then pressing to the edge of the water, or climbing along the extended branches of the trees, armed with long bamboos or harpoons, they, with loud cries, push the animals forward, and prevent their retreat. The *gymnoti*, roused from their slumbers by this noise and tumult, mount near the surface, and swimming like so many livid water serpents, briskly pursue the intruders, and gliding under their bellies, discharge through them the most violent and repeated shocks. The horses, convulsed and terrified, their mane erect, and their eyes staring with pain and anguish, make unavailing struggles to escape. In less than five minutes, two of them sunk under the water and were drowned. Victory seemed to declare for the electric eels. But their activity now began to relax. Fatigued by such expense of nervous energy, they shot their electric discharges with less frequency and effect. The surviving horses gradually recovered from the shocks, and became more composed and vigorous. In a quarter of an hour, the *gymnoti* finally retired from the contest, and in such a state of langour and complete exhaustion, that they were easily dragged on shore by help of small harpoons fastened to cords.—This very singular plan of obtaining the electric eel is, in allusion to the mode of catching fish by means of the infusion of narcotic plants, termed *embarbascar con caballos*, or *poisoning with horses*.

THE MEDLEY No. XI.

Variety's the very spice of life
That gives it all its flavour.

COWPER.

EPIGRAMS.

Honest Teague, when return'd from a trip to the North;
For to Lapland 'twas said he had been;
Was question'd—" if during his cold wintry birth,
Whether any Rein Deer he had seen ?"

When says he, " by my sowle as the truth I regard,
I was stationed there almost a year;
And sometimes, in Summer, it rain'd very hard,
But I never once saw it rain Deer !"

Jack his own merit sees. This gives him pride,
That he sees more than all the world beside.

CURIOSITIES.

[The ensuing is a catalogue of natural and artificial curiosities, which were transmitted to the President of the United States from Fort Mandan on the Missouri, by Capts. Lewis and Clarke. It is taken from their Journal. The date of it is the 4th March, 1805.]

" We now packed up in different boxes a variety of articles for the President, which we shall send in the barge. They consisted of a stuffed male and female antelope with their skeletons, a weasel, three squirrels from the Rocky mountains, the skeleton of the prairie wolf, those of the white and grey hare, a male and female blaireau, or burrowing dog of the prairie, with a skeleton of the female,

two burrowing squirrels, a white weasel, and the skin of the louservia, the horns of the mountain ram, or big-horn, a pair of large elk horns, the horns and tail of the black tailed deer, and a variety of skins, such as those of the red fox, white hare, martin, yellow bear obtained from the Sioux; also, a number of articles of indian dress, among which was a buffaloe robe, representing a battle fought about eight years since between the Sioux and Ricaras against the Mandans and Minnetarees, in which the combatants are represented on horseback.—A Mandan bow and quiver of arrows, also some Ricara tobacco-seed and an ear of Mandan corn; to these were added a box of plants, another of insects, and three cases containing a burrowing squirrel, a prairie hen, and four magpies, all alive."

MAXIM

Gentle manners, virtuous lives
Make easy husbands, happy wives.
These are the only means we know,
To make a little heaven below.

BUT

Angry manners, vicious lives,
Make wretched husbands, dreadful wives,
And hence such evils take their birth,
And make a little hell on earth.

FIRE.

"Is it not astonishing" says Goguet, "to think that there was a time, when a great part of mankind knew nothing of fire, and were quite ignorant of its properties and use? This however, is a truth attested by the most ancient, and

most unanimous tradition. The Egyptians, Persians, Phenicians, Greeks, and several other nations, acknowledge that their ancestors were once without the use of fire. Facts of the same kind are attested by several modern relations.

The inhabitants of the Marian islands, which were discovered in 1521, had no idea of fire. Never was astonishment greater than theirs, when they saw it, on the descent of Magellan on one of their islands. At first they believed it to be a kind of animal, that fixed itself to, and fed upon wood. Some of them, who approached too near, being burnt, the rest were terrified, and durst only look upon it at a distance. They were afraid, they said, of being bit, or lest that dreadful animal should wound them with his violent respiration; for these were the first notions they formed of the heat and flame. Such too, probably, were the notions the Greeks originally formed of them."

MARRIAGE.

The Assyrians, observes the same learned author, had one practice with respect to marriage, worthy of our attention. Every year they assembled in one place, all the young girls, who were marriageable. The public crier put them up to sale, one after another. The rich paid a high price for those whose figure seemed to them the most agreeable. The money, which was received for these, was bestowed, as a portion, with the more homely, whom nobody would have fancied. For after they had disposed of the most beautiful, the crier presented such as were less attracting, and asked if any one would accept of such an one with such a sum. The sale proceeded by coming lower and lower, and she was at last allotted to him, who was

willing to accept of her with the smallest portion. In this manner all the young women were provided with husbands.

THE DEAD TWINS.

[From the Analectic Magazine.]

'Twas summer, and a Sabbath eve,
And balmy was the air,
I saw a sight that made me grieve,
And yet the sight was fair;
Within a little coffin lay
Two lifeless babes as sweet as May.

Like waxen dolls, that infants dress,
The little bodies were;
A look of placid happiness
Did on each face appear;
And in the coffin, short and wide,
They lay together, side by side.

A rosebud, nearly closed, I found
Each little hand within,
And many a pink was strew'd around,
With sprigs of jessamine;
And yet the flowers that round them lay
Were not to me more fair than they.

Their mother, as a lily pale,
Sat by them on a bed,
And, bending o'er them, told her tale,
And many a tear she shed;
Yet oft she cried amidst her pain,
My babes and I shall meet again.

MISCELLANEOUS INTELLIGENCE.

The number of young gentlemen on whom the bachalaureate was conferred at the different Colleges and Universities of New-England in the year 1815.

Middlebury College	30
University of Vermont	none
Williams' College	24
Bowdoin College	8
Brown University	22
Dartmouth University*	
Yale College	69
Harvard University	66

Number of Graduates in 1805.

Middlebury College	16
University of Vermont	3
Williams College	26
Dartmouth University	28
Providence College	28
Yale College	40
Harvard University	47
	188

Literary Tablet.

THE CAMELION.

Mr. Forbes, the benevolent author of a late splendid work, called Oriental Memoirs, states the fact of his having

* From this College we have had no returns.

for some time, when in India, kept a cameleon. Its general colour was "a pleasant green," spotted with pale blue. Its customary changes were to a bright yellow, a dark olive, and a dull green: but when irritated, or when a dog approached, the body became inflated, and the skin clouded like tortoise-shell. The animal was most affected by any thing black, and carefully avoided the skirting-board of the room, which was of that colour. The change of colour appeared to be painful to it.

Christian Observer.

QUANTITY OF RAIN.

It is said to have been determined by observation, that the mean annual quantity of rain is greatest at the equator, and decreases as we approach the poles. Thus at Granada, in 12°. N. lat. the mean quantity is 126 inches; at Cape Francois, in N. lat. 20°. 120 inches; at Calcutta, 81; at Rome, 39; in England, 32; and at Petersburgh, 16.

ibid.

VARIATION OF THE MAGNETICAL NEEDLE.

We learn from a letter, lately received from Solomon Bingham, jun. Esq. formerly of Berkshire in this state, that he has taken great pains to ascertain with accuracy the variation of the magnetical needle from the north pole, at his house in Berkshire, and also at his present residence at Missisquoi Bay, Lower Canada. The results of his numerous trials are these.

At Berkshire, Vermont, the variation is 14°. 0. West.
At Missisquoi Bay, L. Canada, 10°. 0. West.

At the latter place, the variation of the needle was determined by measuring the angle formed between the magnetical meridian, and a very long meridian line, which had been drawn by the north star, when on the meridian.

GAS-LIGHT.

[The following interesting articles are copied from the Port Folio.]

At fort Ellis, in Nova-Scotia, as appears by a letter of 22d August, 1815, a successful attempt was made to procure the carburetted hydrogen for gas-lights, from birch bark mixed with pitch-pine knots. Six ounces of the former, and two of pine knot were put in a metal tea-kettle; the cover was closely luted with clay, and the kettle placed on the fire; in from five to seven minutes the gas escaped out of the nozzel of the kettle, and being set fire to, gave a clear light equal to three candles, for one hour and thirty minutes. Ten ounces of birch- bark alone, issuing through a reed produced a flame for three hours without burning the reed. This experiment was made by Messrs. Harris and Harper. The carburetted hydrogen from pine saw-dust, as well as from coal, has been exhibited every year for these four years in a course of lectures in this country. Liverpool coal yields about twenty-five gallons of gas to the pound of coal, and pine saw dust about eighteen, in a small experiment; in a large way, it would probably yield more.

Covent Garden theatre, during the past month, has exhibited THE TRIUMPH OF THE GAS LIGHTS. Never was illumination more brilliant, more precise, more innoxious, and,

at the same time, more economical.—There is a blaze of white light round the theatre, and in all its avenues, differing little from the light of day, at half the expence of oil lamps, which served only "*to render the darkness visible.*" There are altogether about sixty burners besides globes, from which issue streams of illuminated gas, almost too intense for the eye to look at. The whole is transmitted above a mile and a half from the gas-light manufactory, in Peter-street, Westminster, which also lights most of the intermediate streets and houses; Fleet-street, Ludgate-hill and other adjacent scites are lighted from the manufactory in Water lane, and exhibit a blaze of light which excites astonishment and pleasure, in all that behold it.—The cost is three pounds per annum, or two pence per night, for shop-window lights, and four pounds, or two-pence half-penny per night for indoor and street-lamps, which are supposed to burn longer than the former; and as one gas burner is equal to twenty or thirty common street-lamps, and to two or three of the best Argand-lamps, the saving is, in all cases, very considerable, independently of the vast increase of the intensity of the illumination.

LONDON CHARITY SCHOOLS.

Extract of a letter from an American gentleman in Europe, dated London, June 6, 1815.

On Thursday last I went to an exhibition of charity children in St. Paul's. It is an anniversary in which all the children who are supported by *publtic* charity meet in the respective uniforms of their parishes, and, under their several instructors, for the purpose of a public contribution. Their number is no less than eight thousand; all between

seven and fourteen, and none of them belonging to the numberless *private* institutions of benevolence with which this island, and particularly its metropolis, is every where studded. On this occasion they are arranged as in a great amphitheatre, row after row, nearly thirty feet in height; and when you consider that they are all dressed in neat uniform, and in the ancient costume of the island—the boys in breeches and strait coats, and the girls in white aprons and caps—you would easily imagine that nothing could be more picturesque, than the exhibition they made.—The number of spectators was estimated to be at least 12,000; yet the whole number present [20,000] did not fill the half of the immense area of the church in which they assembled. They filled indeed every part of it from which the children could be seen; but not the rest, the long drawn aisles, the deep alcoves, the ample chauntries and chapels, which serve to make up the remainder of this solemn pile.

But when the voice of all these eight thousand innocents suddenly burst forth in Handel's Hallelujah, which as they sung without notes, and were perfectly prepared, came with all the force of spontaneous devotion; then the whole church, through all its windings and recesses, seemed instinct with voice and spirit. I have seldom felt so strong an emotion as at that moment. The children were perfectly prepared, they all began at the same instant; they were never out of time with the organ or with one another; and when they paused as they did with simultaneous exactness,

The silence of that huge and solemn pile,
Fell on the heart.

It *seemed* as if the smallest whisper would have been audible from one extremity to the other of the immense audi-

ence. In a few moments after the lesson had been read, and before the sermon commenced, they all burst forth in the same way, in a *Te Deum* and *God save the King;* and though the audience were in some sort prepared for it the same effect seemed to follow.

The whole exhibition was very different from any thing I have ever witnessed before or can ever see again, unless I should happen to be in London, on the same anniversary, for I am sure the world cannot produce its parallel.

It appears from official authority, that upwards of 40,000 children are instructed in England by what is called the national society. Many children are also educated by other societies, and many seminaries are supported by legacies, and as charitable institutions, where the children are maintained as well as taught.—*New-York Spectator.*

NEW DISCOVERY IN OPTICKS.

Mr. Andrew Horn will immediately put to the press a short Essay, in which the seat of vision is determined; and, by the discovery of a new function in the organ, a foundation laid for explaining its mechanism, and the various phænomena, on principles hitherto unattempted.—*Lon. Mag.*

POMEGRANATE.

A physician at Moscow, named Beuman, has discovered that the rind of the pomegranate may supply the place of the quinquina in many cases, especially in intermittent fevers. He has published at Moscow a memoir, in which he endeavours to prove the efficacy of his new remedy.

THE RESULT OF METEOROLOGICAL OBSERVATIONS,

Made at Williams College, 1812.

Communicated by Professor Dewey.

Months.	Highest	Lowest	Av. Tem.	Av. Baro.
January	59	—17	19.04	29.69
February	45. 5	—13	21.89	29.93
March	66	— 7.75	28.22	29.95
April	74	6 .66	41.96	29.92
May	88	26	49.58	29.80
June	90	42	62.17	29.45
July	95.33	38	66.80	29.54
August	93.33	44	63.66	29.58
Sept.	78	27. 5	55.29	29.67
October	80. 5	21.75	46.93	29.53
Nov.	67	13. 5	34.77	29.52
Dec.	51.66	7. 5	27.31	29.46

Average Temperature of the year,	43.10
Ditto of Highest,	74.02
Ditto of Lowest,	15.76
Average Height of the Barometer,	29.67

The publication of the above Meteorological Observations has been for a long time postponed in consequence of the letter which contained them being mislaid.

RESULT OF METEOROLOGICAL OBSERVATIONS,

Made at Williams College, 1814.

Communicated by Professor Dewey.

Months	Highest	Lowest	Mean of 3 observat's
January	42. 5	—16.25	19. 8
February	55	—12	27. 6
March	66.6	— 3	30. 9
April	86	20	44. 8
May	90. 6	29. 5	55. 8
June	90	37. 5	62. 5
July	88	46	64. 4
August	89	38	64. 3
Sept.	91	32	59
October	73	21	44
Nov.	61	10	37
Dec.	40	—10	24. 8
Mean Tem. of the year,			44. 5
Ditto of Highest			72. 7
Ditto of Lowest			16. 0

The Aurora Borealis was seen several times in the spring months. Sabbath evening, April 17th, it was very extensive and splendid. A dark cloud rose in the north, extending over many degrees of the horizon, immediately above which appeared streams, pillars and corruscations of the Aurora. When the cloud had risen about 34o. above the horizon, the Aurora made its appearance below, as well as above it, shooting in narrow flashes or broad pillars, sometimes from the horizon, sometimes from parts above, producing a general illumination of the heavens, the cloud excepted. It was generally brighter above the cloud, which was from one to two degrees in breadth, than below it. The cloud continued to rise, growing apparently less dense, till it passed the zenith, extending in a broad arch from a little south of East, to a little south of West. The auroral light appeared in the zenith, like clouds suddenly illuminated, which were rapidly changing their place. In places where the sky was perfectly clear, thin, fleecy clouds were suddenly lighted up, and instantly disappeared.

These extended several degrees in length and breadth. Before 12 o' clock, the principal cloud began to retire towards the North with greater celerity than it had risen, presenting a similar aspect, but not so brilliant. Several of the above appearances were noticed by a respectable physician in the south part of the county.

RESULT OF METEOROLOGICAL OBSERVATIONS,

Made at Williams College, 1815.—Communicated by Professor Dewey.

Months.	Highest.	Day of Highest.	Lowest.	Day of Lowest.	Greatest mean of any day.	and the day.	Least mean of any day.	and the day.	Mean temperature of the month.
January	53. 5	2	—9	7	40. 5	2	—6. 66	31	20.66
February	56	28	—7	15	39	28	6. 16	23	21.94
March	68	5	2	21	55	5	14. 5	21	35.51
April	84	27	24	1	63	27	30	1	44.08
May	90	28	28	9	77.83	28	41.16	20	51.86
June	93.75	30	42.66	5	77	30	52.83	7	62.77
July	96	14	53	4	83.83	23	60	4	72.15
August	91. 5	1	43	4	75	18.30	57	4	65.23
Sept.	93	10	28	28	79. 5	10	41.25	28	57.17
October	60.25	1	17	31	57. 4	1	28	31	45.75
Nov.	64.33	6	10.25	13	59. 4	6	21	12	36.63
Dec.	45	15	4.75	11	37. 5	24	11	1	24.67
Results	75.23		19.72		62.04		29.68		44.87

Mean of the highest and lowest 47.51 Ditto of the highest and lowest mean 45.88

The Aurora Borealis was visible seven times in July and twice in September.—The wind was N. W. 207 days in the year, S. E. 84, and S. W. 52.—The mean temperature at this place for the last six years, is 44.87. We shall hereafter keep a register of the state of the thermometer at VII A. M. at II P. M. and at IX P. M.

METEOROLOGICAL OBSERVATIONS, Made at Middlebury College.

	JULY.				AUGUST.				
Y'r.	Day.	7o'clk	Noon.	9oclk. mean.	Day.	7 oclk.	Noon	9clk. mean.	
1814	1	52	86	64 67.33	1	68	88	64	73.33
	2	52	94	64 70.00	2	70	78	65	71.00
	3	71	68	64 71.00	3	66	82	63	70 33
	4	66	84	62 70.66	4	68	73	58	66.33
	5	60	72	57 63.00	5	56	78	62	65 33
	6	71	87	74 77.33	6	56	82	66	68.66
	7	71	72	54 65.66	7	53	80	69	67.33
	8	54	73	60 62.33	8	68	80	60	69 33
	9	49	84	63 65 33	9	61	71	61	64 33
	10	70	93	64 75·66	10	54	84	67	71.33
	11	61	82	56 66.33	11	58	83	74	71.66
	12	53	57	50 53.33	12	62	82	60	68.00
	13	58	74	55 62 33	13	61	90	66	72.33
	14	58	78	60 65.33	14	58	68	58	61 33
	15	61	88	70 75 00	15	60	68	63	63.66
	16	58	88	70 72.00	16	68	69	64	67.00
	17	66	68	60 64.66	17	74	84	62	73.33
	18	60	88	59 66 33	18	73	86	68	75.66
	19	46	76	55 59.00	19	68	86	64	72.66
	20	49	74	67 69.33	20	63	76	61	66.66
	21	55	70	64 63.00	21	53	60	51	54.66
	22	62	82	59 67.66	22	50	64	45	53.00
	23	61	90	64 71.66	23	54	68	52	58.00
	24	68	87	63 72.66	24	57	67	63	62.33
	25	67	69	67 67 66	25	62	70	50	60.66
	26	56	81	56 64.33	26	41	64	45	50.00
	27	61	87	60 69.33	27	44	76	60	60.00
	28	66	82	69 72.33	28	61	68	58	62.33
	29	68	79	65 70.66	29	62	75	57	64.66
	30	64	76	64 68.00	30	60	79	63	64 00
	31	66	95	69 76.66	31	61	72	54	62.33

Monthly mean temperature	66.51	Monthly mean temperature	65.53
Greatest heat	95.00	Greatest heat	90.00
Least heat	52.00	Least heat	41,00

METEOROLOGICAL OBSERVATIONS,
Made at Middlebury College,

	SEPTEMBER.				OCTOBER.				
Y'r.	Day.	7o'clk.	Noon.	9o'clk.	mean.	Day.	7o'clk.	Noon.	9o'clk.	mean.
1814	1	66	83	66	71.66	1814	1	56	70	60	62.00
	2	67	82	66	71.66		2	54	68	56	62.66
	3	68	84	65	72.34		3	49	67	50	55.33
	4	83	87	67	70.61		4	46	63	50	53.00
	5	44	53	36	44.33		5	40	62	58	53.33
	6	33	62	56	42.00		6	45	52	44	47.00
	7	55	77	63	65.00		7	40	41	39	40.00
	8	60	64	57	62.33		8	35	46	26	35.66
	9	45	70	50	55.00		9	25	50	42	39.00
	10	42	74	64	60.00		10	43	70	40	51.00
	11	57	72	53	60.66		11	42	69	58	56.33
	12	42	52	48	47.33		12	54	76	62	64.00
	13	44	54	43	47.00		13	54	60	40	51.33
	14	46	52	48	48.66		14	42	73	67	60.66
	15	48	61	56	55.00		15	61	58	40	53.00
	16	55	62	58	58.33		16	36	39	31	35.33
	17	59	72	61	64.00		17	24	45	28	32.33
	18	57	62	48	55.66		18	28	50	40	37.66
	19	46	63	40	49.66		19	43	50	42	45.00
	20	49	72	59	60.00		20	41	53	38	44.00
	21	54	58	53	44.33		21	36	51	37	41.33
	22	66	72	58	65.33		22	34	43	32	35.33
	23	56	64	47	55.66		23	29	40	31	33.33
	24	40	55	54	50.66		24	33	41	23	32.33
	25	52	56	40	49.33		25	30	52	45	42.33
	26	42	52	43	45.66		26	43	58	47	36.00
	27	33	60	34	42.33		27	49	38	57	58.00
	28	40	61	53	51.33		28	62	45	50	59.00
	29	54	72	43	58.00		29	42	50	44	48.66
	30	42	70	50	54.00		30	50	53	42	48.33
							31	27	52	31	36.66

Monthly mean temperature.	40 53	Monthly mean temperature.	46 80
Greatest heat	87 00	Greatest heat	76 00
Lowest heat	34 00	Lowest heat	23.00

METEOROLOGICAL OBSERVATIONS,
Made at Middlebury College.

		NOVEMBER.					DECEMBER.			
Y'r.	Day.	7o'clk.	Noon.	9o'clk.	mean.	Day.	7o'clk.	Noon.	9o'clk.	mean.
1814	1	26	42	30	32.66	1	34	40	33	32.33
	2	22	39	37	29.33	2	32	42	31	35.00
	3	35	38	34	35.66	3	22	26	20	22.66
	4	38	48	40	42.00	4	27	39	36	34.00
	5	40	50	39	43.00	5	22	28	20	22.66
	6	45	51	40	45.33	6	18	35	21	24.66
	7	39	45	36	40.00	7	23	36	20	26.33
	8	35	43	32	36.66	8	19	24	14	19.00
	9	33	49	34	38.66	9	10	16	12	12.66
	10	36	50	38	41.33	10	20	23	18	20.33
	11	33	48	26	35.66	11	22	27	19	22.66
	12	27	54	45	42.00	12	20	31	22	24.33
	13	50	60	62	57.33	13	23	26	20	23.00
	14	60	48	40	29.33	14	15	30	24	23.00
	15	30	38	31	33.00	15	22	31	15	22.66
	16	28	45	39	37.33	16	23	32	29	28.00
	17	43	51	52	48.66	17	28	36	21	28.83
	18	55	52	40	49.00	18	20	34	22	25.33
	19	32	34	28	31.66	19	16	22	15	17.66
	20	26	33	29	29.33	20	5	10	8	7.66
	21	27	36	19	27.33	21	19	28	20	22.33
	22	21	40	35	32.00	22	23	38	32	31.00
	23	32	44	43	39.66	23	30	41	34	35.00
	24	35	39	28	34.00	24	22	24	13	19.66
	25	20	28	23	23.66	25	6	9	10	8.33
	26	21	32	24	25.66	26	16	9	6	10.33
	27	20	39	30	29.66	27	6	22	19	15.66
	28	24	37	28	33.00	28	22	27	20	23.00
	29	14	34	30	26.00	29	27	42	33	34.00
	30	28	40	31	33.00	30	35	34	32	33.66
						31	40	42	32	38.00

Monthly mean temperature	36.06	Monthly mean temperature.	23.97
Greatest heat	60.00	Greatest heat	42.00
Least heat	19.00	Least heat	5.00

Mean temperature of the whole year, 1814. 43.63
Greatest heat, 31st July, 95.00
Least heat, 4th January, —18.00

In consequence of unavoidable occurrences, no regular thermometrical register, during the year 1815, was kept at this place.